

THE COAST ARTILLERY JOURNAL

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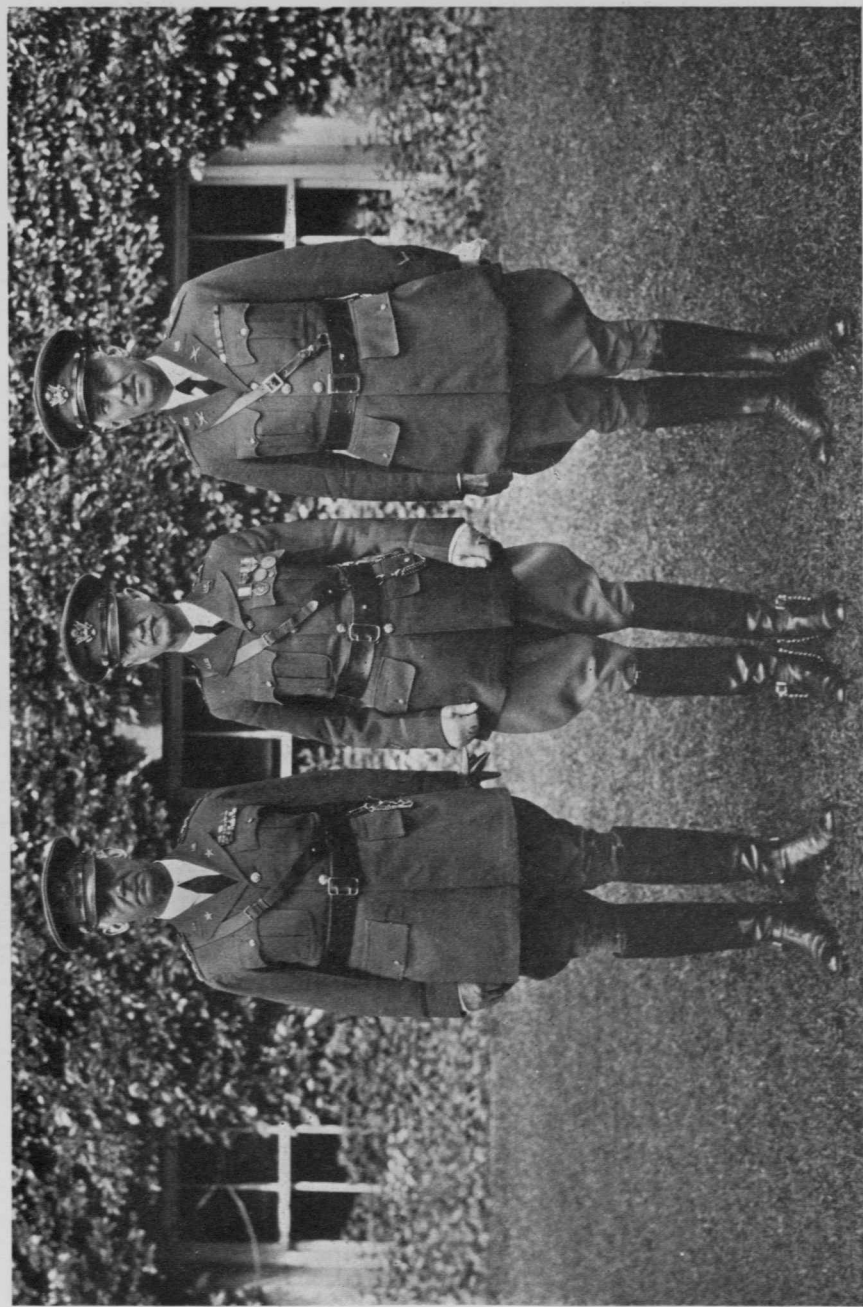
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GEN. CHARLES P. SUMMERALL, CHIEF OF STAFF, U. S. ARMY; MAJ. GEN. HENRY D. TODD, JR., COMMANDANT, COAST ARTILLERY SCHOOL; MAJ. GEN. JOHN W. GULECK, CHIEF OF COAST ARTILLERY, ATTENDING THE 1929-1930 GRADUATING EXERCISES AT THE COAST ARTILLERY SCHOOL, FORT MONROE, VIRGINIA

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The Chief of Staff and the Chief of Coast Artillery Address the Graduates of the Coast Artillery School

General Summerall's address on the future responsibilities and mission of the Coast Artillery Corps

THE invitation to address you from the Chief of Coast Artillery and the Commandant of the Coast Artillery School has been accepted not because of any technical information or message of a professional character that I might bring, but rather to give the support of my own convictions to the fighting arm that you represent.

This school needs no testimonials other than the services and character of its graduates. Since 1824 it has maintained a standard of scientific education that has been reflected in the progress of the arm in our own country and that has held the admiration and respect of foreign services. Today its mission is greater than ever before.

Coast defense has been a part of our country's development from the earliest days. The old Dutch fort on lower Broadway was the beginning of New York City. The British and French early guarded the lake routes and the harbors. The Colonists fell heir to the guns and the defenses in their earliest military operations. The location of General Knox's guns from Ticonderoga that drove the British fleet from Boston Harbor will ever be an historic spot. In the years that followed the Revolution the value of harbor defenses was quickly forgotten. The result was to leave the harbors unprotected. Never has there been a more humiliating spectacle than the helplessness of Mr. Jefferson when for two years the President's Non-intercourse Proclamation and the Embargo Acts of Congress were held in contempt by foreign countries and British ships sailed defiantly in and out of New York Harbor impressing our citizens and taking our supplies. When the War of 1812 began, the merchants and professional men of New York City worked with their own hands on Governors Island to establish a temporary earthwork. From that wholesome lesson there grew the old stone forts that one sees on both sides of every harbor entrance on our coasts which in their day proclaimed to the world the inviolability of our shores. It is significant that the greatest of these, erected on the Dry Tortugas for the protection of our Gulf coasts, was named for the most pacifist of Presidents who became a convert to national defense

through humiliation and the impotency of the Government. These old works have long since become obsolete and have, in general, been replaced by modern installations, but they gave us our place in the family of nations and they paid for themselves many times over by demonstrating our sovereignty to the world. As masterpieces of the engineer's art they will last for all time and they should be preserved as monuments in our history.

The principles that forced their construction are as sound today as they were then. They have endured for all time and they will endure. The world acclaimed Captain Mahan as a genius when he interpreted the obvious mission of navies in all history to gain control of the sea offensively and to destroy or contain the enemy's fleet. It follows that all land installations must be the mission of the Army. Our fleet should be guaranteed safe anchorage under the guns of our harbors whether it is intact or suffering from reverses. At the same time an enemy can not successfully invade our territory from overseas unless he captures one or more suitable harbors for bases. Their protection will render the country secure from invasion even though we have no fleet or the fleet be destroyed. Our nation is practically self-contained and our Government will endure so long as our land forces can maintain its soil inviolate.

With full realization of these truths, a sound system of harbor or coast defense to meet modern conditions was developed by the Endicott Board in 1885, and it was subsequently revised to meet our insular demands by the Taft Board in 1905. Due to economic and psychological conditions and the absence of evident danger they have not been re-armed with the most powerful guns of the day. This does not mean that they are without value. On the contrary, enemy ships can not seriously endanger us or inflict damage upon our territory unless they come within range of our guns and within this range the ships must inevitably be outclassed by the forts. Their value is sufficient to justify maintaining them in condition for immediate use and to keep them equipped with the most improved fire control, searchlights, antiaircraft, mine defenses, and all other modern accessories. The purpose was to make them so strong that they would never be attacked and this purpose should be effectively guaranteed. All have been included in our defense plans and those which were abandoned have been restored and provided with caretakers. The armament will be increased and reinforced by railway artillery, so that in case of war all will be stronger than ever before. Mobilization plans provide at least one relief for all batteries in continental United States and overseas garrisons.

While the strength of the Coast Artillery, reduced by eight thousand men after the war, is too small to furnish anything but caretaking detachments and a few firing centers, the training of our men must fit everyone to exercise some command or to fill a key position so that they may quickly incorporate in the defenses the man-power that would be allocated to them

for war. It must be admitted that many of them present a mournful spectacle in their neglected condition. While the forts of the earlier period of our history were symbols of the virility of our race, the present conditions are not evidences of decline in our national strength. Whatever the ultimate end may be, it is incumbent upon those responsible for the results of a resort to arms to preserve them in such a manner that they may vindicate themselves whatever the disadvantages may be.

As was the case after the Revolution, the public mind has forgotten the significant and even the determining part performed by coast defenses in the World War. Through ignorance or failure to credit their performance, it is a common fallacy to belittle shore batteries and to class them as obsolete. Any account of the Gallipoli Campaign will tell how a few hastily mounted and mediocre guns in connection with some crude mines denied the Dardanelles to the British fleet. The repeated attacks of the ships resulted only in loss, and even the Queen Elizabeth, with the most powerful guns afloat, was held so far from the shore batteries that her fire was ineffective. This performance alone changed the fate of the campaign and the course of the war.

For four years the German fleet rode safely at anchor behind the guns at Heligoland and the defenses of the Kiel Canal when its destruction would have changed the war. So overwhelming was the advantage of these fortifications to the Germans that the Allies required the Germans in the Treaty of Peace to raze every vestige of the Heligoland works in order to eliminate them as a factor in any future conflict.

The submarine hornet's nest at Zeebrugge gave the Germans an inestimable advantage in the operations of their submarines in the Channel. Yet the guns in improvised shore batteries defied the most daring and spectacular raids of the British Navy to destroy it. Again the course of the war was changed by their existence.

Our fortifications have cost two hundred and fifty million dollars and they could not be replaced today for four hundred million dollars. They are worth every cent of their cost and maintenance and they would not fail to perform a determining part in a war involving our extensive coasts and our insular territories.

While the World War did not include our coast defenses, it created a new mission for which the scientific training of the Coast Artillery peculiarly fitted it. Railway and tractor-drawn heavy artillery made their appearance with the stabilized lines and the attacks on land fortifications, and later with the mobile armies. Thanks to the heavy materiel and equipment obtained abroad, our Coast Artillery performed a distinguished part in the operations. Since the war it has logically retained this equipment, and it now constitutes a part of our mobile forces and a reinforcement of the fixed defenses. Many harbors have grown in importance and require additional guns. Some require re-arming, and possible landing beaches

must be defended against convoy warships and landing operations from transports. All of these necessities can happily be supplied by the Coast Artillery when men are provided. The development of fire control systems and equipment and skill in mobility employment and service of this armament are a task that the Coast Artillery must meet.

The World War created another, as well as a new rôle, in the anti-aircraft artillery. Again, our coast artillery was naturally selected for this highly technical and specialized arm. Its importance has immensely increased since the war and its necessity is unquestioned. While an anti-aircraft program should have been a necessary corollary to the Air Corps program, such a procedure has not been adopted. Thanks to the ingenuity and professional zeal of our officers, praise-worthy progress has been made in the development of guns, fire control, listening devices, and search-lights. Antiaircraft armament constitutes one of our most urgent needs and stands as our first priority in the development and rearmament program. Our mobilization plans provide for numerous batteries, all of which must be manufactured in time of peace since, unlike other armament, little of value remained from the war.

While there is an extensive transition in method from the service of fixed defense armament to that of railway and tractor heavy artillery, there is a completely different method in the service of anti-aircraft weapons. Every officer and soldier of the Regular Coast Artillery would be required as commanders or instructors for a war-time army and they must be available for assignment to any one of the three categories of the armament. Orders have, therefore, been issued requiring all Coast Artillery to be trained normally in the use of anti-aircraft guns and equipment in addition to the fixed defenses. The fountain-head of this training must be the Coast Artillery School, and the duty is enjoined upon the Commandant and the faculty to emphasize it in accordance with its importance.

From the above you will readily see something of my vision of the future responsibilities and mission of the Coast Artillery Corps. It has entered upon a new stage of development in a new era. It is the most significant in its history except that of the breech-loading rifled gun and smokeless powder. Upon you gentlemen and your successors rests the prime responsibility and obligation of maintaining the fine traditions of the arm and guiding it to even higher standards and greater fields of usefulness. The Government and the people rely upon you, and I know that you will measure up to their expectations. It is my hope that a full measure of success and recognition will be your reward individually for the signal service that you can render.

Address of Major-General John W. Gulick, Chief of Coast Artillery

It is a pleasure for me to be here today and participate with you in the graduation exercises of the Class of 1929-1930.

First of all I want to say something about the Coast Artillery School. In an informal address here about a month ago, I indicated my personal and professional interest in this institution. In the first sentence of his excellent history of the Coast Artillery School, 1824-1927, Maj. Robert Arthur states:

“The story of the Coast Artillery School is the story of the Coast Artillery.”

Expressed in another way, the Coast Artillery School is the heart of the Coast Artillery and it is this idea that I wish to impress upon you here today. I know of no institution in the Army that has the opportunities and the means for influencing the thought, development and general efficiency of an arm such as those possessed by the Coast Artillery School.

The Coast Artillery School was the first special service school established in our Army and the first order issued by the School, April 11, 1824, and signed by Lieut. Col. Abraham Eustis contains some statements which are applicable to present day conditions and are worthy of our reflection. This order after prescribing the organization of troops states in part:

“The object of the Government in forming the ‘Artillery Corps for Instruction’ is to give to the artillery that perfection which it is found impossible to obtain in the present dispersed condition of the Corps. The lieutenant colonel commanding is too well acquainted with the spirit of emulation which animates the Corps, to deem it necessary at this time to stimulate exertion by any special appeal to its patriotism or its pride. Its officers have been chosen by the Secretary of War and ought to feel highly flattered by the compliment which has been paid them in the selection. The eyes of the Government and of the Army are upon us and much is expected. To meet the just expectations and extended views of the Exalted Personage who projected and has now founded this Institution, will require from every grade the most absolute subordination, perfect harmony and zealous cooperation with the commanding officer.

“Let us then in our intercourse with each other, whether as soldiers or as men, cherish a spirit of conciliation, candour and mutual forbearance, which can never be found inconsistent with a proper firmness.

“Let us carefully guard against the approaches of disaffection and cabal and devote our undivided energies to our professional improvement and the perfection of the artillery.”

I invite your attention to the last quoted statement:

“Let us carefully guard against the approaches of disaffection and cabal and devote our undivided energies to our professional improvement and the perfection of the artillery.”

This sentence could well be adopted as the motto of the School.

A marked deficiency of the Coast Artillery during the past ten years

has been the lack of unity of thought and purpose. No corps, arm or institution can exist or flourish without unity of thought and purpose.

The Chief of Coast Artillery is charged with the duty of promoting unity of thought and purpose throughout the Coast Artillery. I intend to discharge this duty, keeping in mind at all times the policies of the War Department and the fact that we are but one element of the Army of the United States.

At the present time I am more concerned with the spiritual indoctrination of the Coast Artillery Corps than I am with its tactical and technical indoctrination.

We must believe in the Coast Artillery, believe in the necessity for its existence, believe in its mission and believe in its ability to carry out that mission.

There should be no difficulty in meeting these requirements. While it is true that immediately following the World War there was some uncertainty in the mind of the Coast Artillery as to its future development and that many strange and unsound proposals were advanced, at the present time I do not believe that any responsible military or civil authority has any doubt as to the necessity for an effective and efficient Coast Artillery. On the contrary I firmly believe that the necessity for the Coast Artillery as an independent arm is more apparent today than ever before in our history.

Second—we must think clearly in order to maintain a proper balance between the varied activities assigned to the corps.

The service of seacoast, antiaircraft, railway and tractor-drawn guns and controlled submarine mines gives us a large field of activity. All of these services are important and no one can say that one is more important than another.

In my opinion the next four years will be a critical period for the Coast Artillery. We must believe, think and work to a common end subordinating all personal considerations. We are now entering upon a new period of development which will demand our best efforts. We must look forward to the future with confidence and aggressiveness.

The Coast Artillery has many fine traditions and a history of fine accomplishments. Let us preserve these traditions and look forward to more accomplishments. *Above all be proud to be a Coast Artilleryman.*

In carrying out this task, I shall consider the Coast Artillery School as my right arm and I shall expect the cooperation and loyal support of every officer of the Coast Artillery Corps.

I hope to see the continued development and expansion of the influence of the Coast Artillery School. During my term of office I hope to see established at Fort Monroe a Coast Artillery center, embracing many phases of professional activities. Above all, I hope to see here the happiest garrison in the Army.

I will refrain from giving you my views at this time as to the necessity for and the adequacy of our system of harbor defenses and the development of new means of defense as I know they will be covered by the distinguished officer (General Summerall, Chief of Staff) who will address you later. His views are my views.

In the past, seacoast or harbor defense artillery has not kept pace with naval development. As a result of the advent of aircraft, other means of warfare and international agreements, it would appear that navies of the future will differ materially in composition from those of the present. It would be well for the Coast Artillery to study the tendency of naval development so that we can be prepared to meet changes in the future. It may be questioned whether it is desirable to emplace more large caliber guns and whether or not the gun of the future will be a medium caliber rapid fire gun of high velocity. We should lead instead of following.

With our new training mission, all officers of the Coast Artillery must be trained and must be efficient in seacoast, antiaircraft, tractor-drawn and railway artillery and in controlled submarine mines. This demands broad but thorough training and the Coast Artillery School must adapt its program and methods to meet the situation.

The Coast Artillery is a most important element of the Army of the United States. Before the war there was a tendency to isolate ourselves into a self contained unit. I fought that tendency here in the Coast Artillery School and I feel that I did something in bringing the Coast Artillery in contact with the other branches of the Army during the latter part of my service here. Fortunately these tendencies are in the past. Officers of the Coast Artillery now have every opportunity to participate in the administration of the Army through service on the General Staff and to prepare themselves for high command by attending the General Service Schools and the Army War College. They have uniformly done well in such positions. There are more opportunities open to Coast Artillery officers today than ever before in the history of our arm.

As our War Complement must be furnished by the National Guard and the Organized Reserves, it is essential that every officer of the Regular Army should serve at least one tour of duty with each of these components. I know of no other way by which a comprehensive knowledge of the powers and limitations of these two components can be obtained. Officers on duty with the National Guard and the Organized Reserves have many opportunities for professional work of a high order and for advancing the interests of their own arm. There are many splendid organizations in the National Guard and in the Organized Reserves officered by men who are outstanding in their own communities. They are critical of mediocre officers of the Regular Army and their criticism reflects upon the arm concerned and the Regular Army as a whole. I believe that we should maintain close contact with the Coast Artillery organizations of the National

Guard and the Organized Reserves and that we should cooperate in every possible way in their advancement and in their development. To those of this class who have been assigned to duty with the National Guard or the Organized Reserves, I will say that I consider this duty second to none in importance.

I know that you feel that you have had a busy but profitable year here in the school and are looking forward to your new duties. The courses here are designed to improve your professional qualifications. The Coast Artillery School is but a single unit in the school system. It is your responsibility to utilize the training you have received here to prepare yourself for the next step in the school system or for your opportunity. It is fatal to rest content with the work that you have done here. I advise you to continue the studies of the past year, particularly along lines of international relations and the history of the World War. Study the careers of the participants in the World War, find out the reasons for their successes and failures. When seeking a detail or assignment, select one that presents the greatest difficulties and if possible one in which someone has failed. Keep your mind and body active, safeguard your record and consider these courses but a step in preparation for your opportunity.

In the administration of the Office, Chief of Coast Artillery, I shall do all in my power to further your interests and arrange matters such as personnel with an understanding of your situation and the requirements of the service. I believe that it is highly essential that the full complement of battery officers be maintained in each unit of the Coast Artillery and, with this object in view, a survey is being made in my office with a view of improving the present situation. It shall be my policy not to approve the detail of battery officers to detached service of any character when any battery complement is not complete.

Field officers should be given opportunities for command. The number of commands in the Coast Artillery being limited, it will be necessary to reestablish the command roster and limit the duty with organizations to not exceed three years, the normal tour being not less than two years. This matter is being studied and I hope to work out a satisfactory plan to give more of our field officers an opportunity to exercise command.

I hope that you will feel that the Office of the Chief of Coast Artillery is your office. When you visit Washington, I want you to call at the office and whenever possible see me in person. I want to know you better and to maintain personal contact with you.

I wish to thank the Commandant and the faculty of the Coast Artillery School and to congratulate them on the excellent work performed during the year. This work is of primary importance to the Coast Artillery and to the Army of the United States. I am satisfied that the Coast Artillery School at Fort Monroe is being conducted with intelligence, understanding, and high efficiency.

I also wish to express my keen appreciation of the efficient cooperation which has existed during the past year between the Coast Artillery School and the Harbor Defenses of Chesapeake Bay. The results accomplished here at the school are due in no small measure to the Commanding Officer and troops of the Harbor Defenses of Chesapeake Bay.

To the Graduating Class, I wish you good luck, a pleasant vacation, if you can get it, and a profitable tour of duty at your new station.

*Do not think that the United States Army is a thing apart and separated from the Army of the United States. In any future emergency, all of these various components will flow into one organic whole. They will be blended and will not be distinguishable from each other. * * * You must not think of yourselves in the Regular Establishment as an organization standing apart. You must think of yourselves as the leaders of the Army of the United States.—Address of the Hon. Patrick J. Hurley, Secretary of War, to the Graduating Class of the United States Military Academy, June 12, 1930.*

Horsemanship at the Coast Artillery School, 1930

By CAPT. EUGENE T. CONWAY, C. A. C.

EDITOR'S NOTE: *The following article may surprise a number of officers who have not visited Fort Monroe for some time. It is a further indication of the ubiquity of the Coast Artillery. In spite of the fact that a few consider the horse "an evil Beast, from menne welle sette apart" there are others who get a real enjoyment out of the association. In addition, horsemanship is a useful art at times. Many officers who served in France with tractor regiments have stated that a horse would have been useful at times to visit widely scattered batteries where it was necessary to traverse terrain unsuitable for motorcycle or car. One officer furnished some amusement by habitually riding a mule, obtained in some undisclosed manner.*

HORSEMANSHIP, one of the oldest accomplishments in the art and science of war, still offers to the soldier something he cannot get in any other way. Athletics are conceded to be a valuable adjunct of scholastic life—but the spirit of the combination of man and beast, commonly called "the trooper" is more than athletics—it is a unique combination which makes for self-reliance, assurance, and a satisfaction of work well done that no amount of studying can give the average man.

Equitation at the Coast Artillery School for the year 1930 was, for some, just "one of those things"—it was for all an occasion for a trip in the open air and a mild form of exercise, and for a few it was a real pleasure. The work in the "bull-ring" was never pleasant but we realized its necessity. When jumping started after Christmas, we thought we would never be able to go through with it, but every other week when Captain Edgecomb, assistant instructor, would take us down the beach and over the jumps in the woods, everyone was delighted with the sport and both horses and riders became better acquainted.

As in past years, the riding ended with the Hampton Horse Show and the Fort Monroe Horse Show, both of which were of course far more interesting to those participating than to the onlookers.

Polo, something rather unusual for the Coast Artillery, furnished additional riding for everyone interested and brought out some real players. If this practice continues for a few more years the Coast Artillery can have, throughout the service, a sufficient number of officers interested in the sport to make it worthwhile to organize teams to compete with the other arms of the service.

It may be of interest to consider for a moment the manner in which all this riding was organized. Maj. Howell M. Estes of the Cavalry, a member of the Tactical Department, and senior instructor in equitation, measured up to the situation at all times. Twice a week, at 3:10 p. m. each class reported at the corral and found a horse tied on the picket line, saddled and ready to go. Horses, and the corresponding chain on the

picket line, were assigned at the beginning of the year according to previous experience, weight, and a goodly mixture of luck, some good and some not so good. We were always back about 4:30 p. m., when everyone unsaddled and hung his saddle and bridle on a numbered peg in the saddle room.

For polo, there were always a sufficient number of boys who delighted to ride the horses out to the field, which is about three miles from the post, on the Buckroe road. Reporting out there, officers were assigned to a team and to a horse on the spot; everyone playing an equal amount and in whatever position he was assigned.

As a forerunner of the two big horse shows, a contest between two teams of the Battery Officers' Class and an individual contest among the officers of the Advanced Class were held during April. In the former case, Capts. C. H. Armstrong and Kenneth Rountree were named team captains and they selected from their platoons, ten horses and ten officers who together with the team captain competed in the contest. There were three events: (1) individual jumping, in which performance of horse counted seventy per cent and the balance was used to judge the horsemanship and form of the riders, (2) pair jumping, and (3) three hunt teams of three riders each. In the last two events, horsemanship and form of riders counted twenty per cent.

The results indicated that the instruction received by each group had been absorbed in an equal amount and although Captain Rountree's team won, the scores were very close, being in the neighborhood of two thousand four hundred and two thousand three hundred and sixty, a difference of only forty points. Jumps in all events consisted of two bar jumps, a broad jump, a low brush hurdle, and a triple bar broad jump, all at three feet six inches.

Captain M. H. Parsons, Capt. P. S. Lowe, and Lieut. G. F. Nichols were among the high individuals who added to the score for their teams.

THE HAMPTON HORSE SHOW

The Hampton Horse Show, drawing spirited animals from all parts of Virginia, was held in the J. S. Darling Memorial Stadium on Friday and Saturday, May 9th and 10th. There were about fifteen horses from the school stables participating in twelve classes, some horses being in as many as ten events.

Despite the fact that our animals were far outclassed in conformation and always lost when it was a factor in the judging, they made an excellent showing, particularly when the event called for any control on the part of the rider. The private mounts winning places throughout the two days had been doing that very thing for several years and they performed so nicely that the judges' decisions always met with popular approval.

In the Green Hunters Class, "Stonewall" and "Home" with Lieut.

A. M. Wilson and Lieut. G. F. Nichols up, gave fine exhibitions over the four three-foot-six jumps.

Where the Army horses showed to best advantage was in the Ladies' Novice Jumping Class, open to horses who had never won a ribbon and ridden by a lady who likewise had never won a ribbon. In addition to being the Army's best bet, it was the popular favorite of the first afternoon. Mrs. Nelson Dingley on "Stonewall" cleared all four jumps with plenty of room to spare and plainly showed her happiness when trotting up for the first place honors which consisted of the traditional blue ribbon, a beautiful cup and a huge bouquet with streamers. Miss Bess Armstrong



THE COMMANDANT, MAJ. GEN. HENRY D. TODD, JR., ASSISTED BY CAPT. A. V. WINTON, PRESENTING THE TROPHY FOR FIRST PLACE IN THE "STICK AND BALL" RACE TO LIEUT. J. R. BURNETT ON "HOME"

lined up "Pershing" alongside Mrs. Dingley to receive the ribbon for second place.

In the last event of the afternoon, the Officers' Jumping Class, Capt. H. E. Pendleton riding "Fortune Teller," owned by Maj. E. T. Trice from Richmond, won first place and then mounting "Pershing" he succeeded in capturing third place, the red ribbon going to Maj. D. H. Blake-lock, a Cavalryman, who rode his private mount "Madam Pele." In this event all jumps were four feet. It was marked throughout by excellent performances by all entrants, the majority of whom were from Fort Monroe. Lieut. R. I. Heinlein handled "Langley" so well that he was able to turn in a clean performance record but the old bugbear, conformation,

destroyed his chances and he received only a polite smile from the judges.

On Saturday afternoon the school horses responded to the call for five classes and in each one performed much better than they had the day previous. There seemed less nervousness both on the part of the horses and the riders. Again, the events were a bit more interesting.

The opening event, the In-and-Out Triple Bar, which consisted of a barrèd enclosure, twenty feet across, into which without the aid of sideboards, each horse had to jump and then without taking more than one stride immediately jump out, and after circling the field to clear a four-foot "bear-trap," as the triple bar was called, was captured by private mounts, but the excellent riding of Captain Pendleton on "Pershing," of Capt. W. C. Braly on "Armstrong," and of Lieut. M. C. Casey on "Arctic" was commended by the judges. They had not had the opportunity, prior to the show, to take such a jump.

First place in the Pair Jumping was uncontended, but two Army pairs tied for second and had to jump it off. In the jump off, Miss Bess Armstrong on "Joe" and Capt. P. S. Lowe on "Foch" cleared slightly better than Mrs. B. S. DuBois on "Pershing" and Capt. W. C. Braly on "Armstrong," winning second and third honors in that order. As he left the last jump, Captain Lowe's horse stumbled, and with the forward seat there was nothing for him to do but slide off, which he did as gracefully as anyone might under the circumstances. Fortunately the event had been completed.

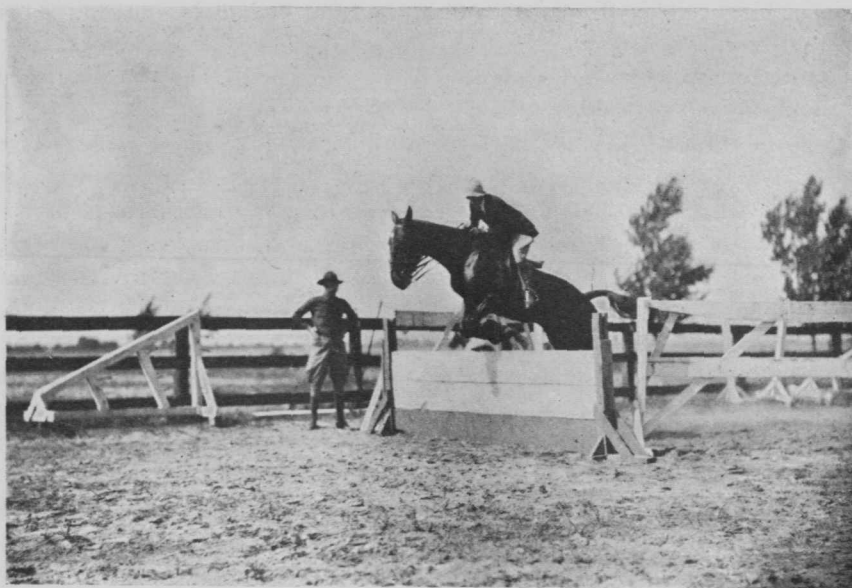
The only school horse to place in the Novelty Jump was "Stonewall" piloted by Lieut. A. M. Wilson, who preceded the civilian entrants and showed them how to put a nervous horse over bales of hay, packing boxes and barrels. His method was to approach the jump slowly and then just as the horse was about to turn, to force him over with a spurt. This event gave him a red ribbon, and immediately afterwards he succeeded in capturing second place in the Officers' Jumping, consisting of eight jumps at three feet six inches. Maj. W. A. Pendleton on "Cinders" was first and Lieut. Heinlein on "Langley" taking third. In this event, Lieutenant Casey, who is noted for his hard and fearless riding, was the popular favorite due to his hairpin turns and vigorous prodding of his mount "Arctic," who, he says, couldn't see very well and needed considerable urging.

The final event of the day, the Hunt Team contest, in which there were two Army and two civilian entries, was very picturesque, the regulation hunt costume and equipment forming an important part in the judging. The number one Army team had considerable difficulty on the two "chicken coop" jumps which were solid barriers at three feet six inches, without wings, over which the teams jumped out of the ring, circled the field and then jumped back into the ring, each time taking four jumps on the inside. The second Army team with Lieutenant Heinlein in the lead with "Lang-

ley" followed at thirty paces by Capt. E. T. Conway on "Soap" and with Lieut. G. F. Nichols on "Home" bringing up the rear, looked like winners until at the top of the eighth barrier, "Soap" tumbled into the bars and Captain Conway joined the Prince of Wales Club. Up to that time there had not been a fault and undoubtedly this team would have placed, sharing honors with one other team, an entrant from the Corley stables near Richmond, which was the only one awarded a place.

THE FORT MONROE HORSE SHOW

The Fort Monroe Horse Show, held in the "bull ring" on Saturday afternoon, May 31, 1930, at which the cups and ribbons were handed the



MRS. J. L. McBRIDE RIDING "VENUS" IN THE 1930 FORT MONROE HORSE SHOW

winners by the Commandant, Maj. Gen. Henry D. Todd, Jr., was a sort of graduation exercise for the equitation classes, both for the ladies and the officers. The judges were Maj. W. A. Pendleton, Field Artillery (DOL), on duty with the National Guard in Norfolk, and Maj. J. E. Lewis, Field Artillery, a student at the Air Corps Tactical School at Langley Field.

There were nine classes, one for children, three for ladies, two polo events, one officers' jumping, one men's jumping and one mixed pair jumping. The band played between the events and together with colorful bunting added considerably to the occasion.

The events were well arranged and followed each other in rapid succession, giving opportunity for a varied display of horsemanship.

In the Children's Saddle Class, open to children between 10 and 13

years of age, Gilbert Johnson on "Buster," Harry Ferris on "Zebedee," and Katherine Estes on "March" were given the blue, red and yellow ribbons, respectively, indicating first, second and third places.

In the Novice Horsemanship Class, for ladies who were rounding out their first year of instruction, Mrs. L. L. Davis on "Colonel," Mrs. F. M. Mountford on "March," and Mrs. Perry McC. Smith on "Harvey" placed in that order.

The third event, the Polo Bending Race, in which a member of the polo squad, stick in hand, raced through a line of six stakes, turned and raced back to the starting line, proved particularly interesting to the spectators, a large number of whom were youngsters rooting for the final winner, Howell M. Estes, Jr., who rode "Belle." Lieut. R. I. Heinlein, our Engineer Corps classmate, on "Zebedee" and Lieut. M. C. Casey on "Byng" placed second and third.

Next on the list was the Advanced Horsemanship Class for Ladies and honors in this event went to Mrs. J. L. McBride, wife of the Post Chaplain, who rode "Ethel B," to Mrs. B. S. DuBois on "Tule" and to Mrs. Riser on "Tom."

Class V was a stick-and-ball race for members of the polo squad, each of whom were given a colored ball, which they batted down the field and back to the starting line. Winners in this event were Lieut. J. R. Burnett on "Home," Capt. E. T. Conway on "Fern" and Lieut. R. I. Heinlein on "Joker."

The next two events, Ladies' and Officers' Jumping Classes, brought out the main test of the day. In both cases the first jump was the hardest and brought the greatest number of casualties. The ladies jumped three feet four inches and the officers three feet six inches and in the latter case, the course included the triple bar, making five jumps in all for the officers. "Stonewall" with Mrs. J. T. Lewis up, as in the Hampton Horse Show, showed beautiful form, gave a clean performance and won for Mrs. Lewis the coveted blue ribbon. Mrs. I. H. Ritchie on "Home" and Mrs. Riser on "Fern" took second and third honors against a field of eleven. Capt. W. C. Braly on "Soap," Lieut. M. C. Casey on "Pershing" and Lieut. A. M. Wilson on "Frank" placed in that order out of a field of eighteen, at least fifteen of whom gave the winners a close run for the money. There was considerable discussion among the spectators as to the relative performance of "Soap" and "Pershing," the judges finally awarding the blue ribbon to "Soap."

Perhaps the most picturesque event, the Mixed Pair Jumping, was enthusiastically received by all. Horses were well matched for size, color and jumping ability. Performance of horses and riders and the manner of going of the pair were points considered. The work of the judges was rather simplified, for the winners not only stayed together but gave the only clean performance, the pair winning the red ribbon having one rear

tip and the pair finishing third out of a field of eleven pairs had but two rear tips. The honors went to Mrs. I. H. Ritchie and Lieut. Perry McC. Smith on "Foch" and "Sandy," second place to Mrs. W. C. Braly and Lieut. W. I. Allen on "Hardy" and "Venus," and the yellow ribbon to Mrs. H. W. Rehm and Lieut. H. E. C. Breitung on "Arctic" and "Langley."

The last event on the calendar was for enlisted men and the boys who rode the polo horses out to the field during the season. They showed their horses over four jumps at three feet four inches. Bob Van Volkenburgh, Jr., on "Home" won the jump-off which was held for four horses who had had a clean performance on the first time around. Private Sweet of the



THE 1930 POLO SQUAD AT THE COAST ARTILLERY SCHOOL

Coast Artillery School Detachment, who piloted "Armstrong," placed next and the biggest surprise was the excellent work by Private Faust of the Coast Artillery School Detachment who put "Cook," one of the older and heavier horses, in the money, winning third place.

A large share of the promptness and dispatch in the handling of the show was due to the excellent work of Chaplain James L. McBride in charge of the paddock and to Capt. F. E. Edgecomb who handled the in gate.

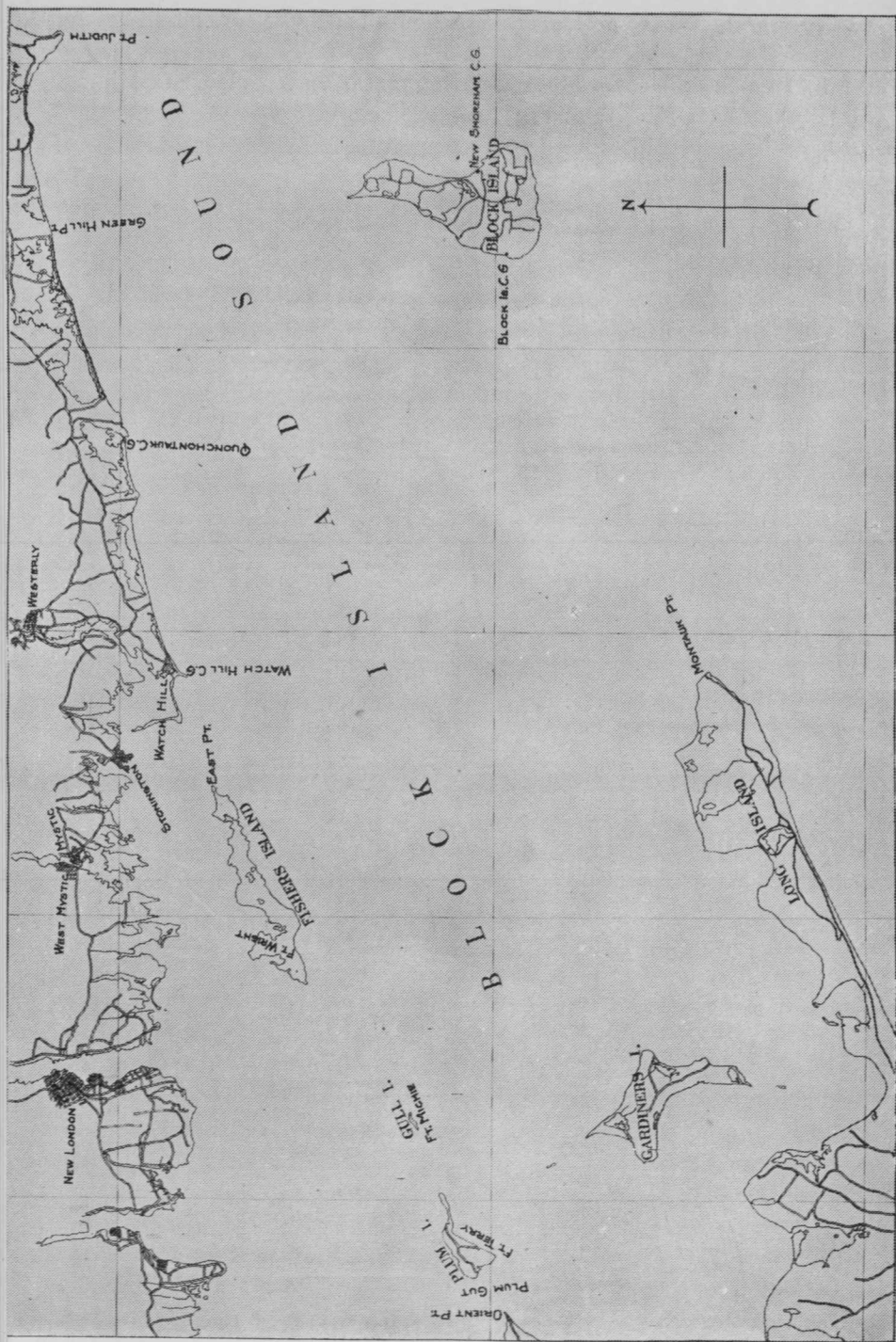
POLO

On Wednesday, Saturday and Sunday afternoons throughout the year polo enthusiasts turned out faithfully and in some cases developed remarkably well. The consensus of opinion among the bystanders was to the effect that this year's aggregation was a bit better than any turned out heretofore.

Although there were a number of changes in the polo association during the year, the only casualty was when Lieut. R. E. Bates suffered a knee injury which put him in the hospital during the course in Submarine Mining. This caused him to be the envy of those who suffered with the Single Conductor System, but it precluded his participation in the spring tournament, except as an interested spectator.

The big event of the year was the spring tournament consisting of a round-robin between three teams, playing each other each polo afternoon, the team making the highest score for the day receiving two points and the team placing second, one point. In all there were about eight playing days and although the teams were presumably equally matched at the outset, as always, the best man wins—and Lieut. J. R. Burnett's team, the "Reds," won with a score of thirteen. Cups were awarded in addition to Lieut. W. I. Allen, Lieut. M. C. Casey and Lieut. R. I. Heinlein, who ably assisted their team captain, the outstanding player of the season. Lieutenant Burnett led the scoring with eighteen goals to his credit. Howell Estes, Jr., with nine and Lieutenant H. E. C. Breitung with eight goals both helped the "Green" team to win second place with a score of eleven. Lieuts. G. R. Burgess, D. B. Latimer and Capt. S. R. Mickelsen, team captain, were the "backs" on the "Green" team. The "White" team with Lieuts. H. P. Tasker, C. W. Gettys, J. H. Pitzer and Captain Conway finished with a score of seven and although not rated so highly, they had the satisfaction of knowing that they had put up a good fight and had a lot of fun.

The sideboards were lined with cars throughout the playing of the tournament and this, together with the enthusiastic interest in the two horse shows, indicates that horsemanship at the Coast Artillery School is here to stay.



Minor Joint Army and Navy Exercises— Harbor Defenses of Long Island Sound

By MAJ. R. E. GUTHRIE, C. A. C.

THE Minor Joint Army and Navy Exercises, in the Harbor Defenses of Long Island Sound, May 26 to 28, 1930, were conducted as a test of cooperation and coordination between the elements of the defending (Blue) forces. The operations of the attacking (Black) forces were controlled by the instructions governing the conduct of the exercises. They were divided into five phases, each phase representing one stage in an assumed continuous operation of a predetermined and stereotyped character. In each phase, the possible influences of weather and visibility, and the results of the operations in preceding phases, were disregarded. There were no umpires, no penalties were imposed, and no decisions as to results of operations were made, either during or after the exercises. The Blue forces, in effect, conducted a series of drills of a comprehensive character, using the Black forces as a target.

The organization of the Harbor Defenses for the exercises assumed the complete manning of all armament and accessories actually in existence.

The subordinate organizations operating immediately under the Harbor Defense Commander, were as follows:

Fort Wright Groupment, comprising all seacoast artillery armament at Forts H. G. Wright and Michie.

Fort Terry Groupment, comprising all seacoast artillery armament at Fort Terry.

Antiaircraft Subgroupment, organized to man the antiaircraft armament actually on hand in the Harbor Defenses.

Observation System, consisting of seven advanced observation posts, established to meet the special requirements of the exercises.

Harbor Defense Aviation, consisting of one Observation Squadron, one Bombardment Squadron, and one Pursuit Squadron.

The Inshore Patrol, operating under the Commander of the Blue Naval Forces, supported the Harbor Defenses.

All elements were manned by one relief, with the exception of the firing batteries. Two seacoast batteries, and one antiaircraft battery manned base lines for the purpose of plotting the courses of Black vessels, and aircraft. The other firing batteries were represented by one or more men, stationed at the battery command posts, and in telephone communication with the respective Group Commanders. The details or organization and the assignments of personnel were published in an annex to Field Orders No. 1, Harbor Defenses of Long Island Sound.

The Harbor Defense Commander's Staff consisted of an Executive, an

Intelligence Officer, an Operations Officer for each arm (seacoast artillery, antiaircraft artillery and aviation), a Communications Officer, and a Naval District Liaison Officer. The intelligence section operated as a unit for all arms. The intelligence and operations sections were in adjacent rooms. The intelligence section was provided with direct telephone communication to all sources of information. Separate command lines were provided to each unit, with operators continuously on duty. An extension of each operations telephone was provided for use by the operations officers.

The Inshore Patrol, consisting of six submarines and a tender, operated under the control of the Commander of the Blue Naval Forces in accordance with the general mission assigned by the Harbor Defense Commander. Radio communication between the patrol force and the shore was handled by the Navy, the Harbor Defenses intercepting the messages and making use of the information directly. Telephone communication between the U. S. Submarine Base and the Harbor Defense command post served as a check on the intercept.

The general and special situations assumed an unexpected declaration of war by Black, and the engagement of the entire Blue fleet with the main Black fleet at such a distance as to eliminate them from consideration in the conduct of the exercises.

A detachment of the Black fleet, consisting of six cruisers and eighteen destroyers was reported to be approaching the New England coast.

As a result of the situation issued, the Harbor Defense Commander issued the following orders:

(Attach Field Orders No. 1, without annexes).

In conformity with Field Orders No. 1, all elements of the Harbor Defenses occupied battle positions on May 19, 1930, with the exception of the aviation which arrived on May 24, 1930. The succeeding week was a War Condition Period during which all elements were alerted for drills in preparation for the joint exercises. The nominal status of the Harbor Defenses was assumed to conform to the missions assigned in Field Orders No. 1: That is the water areas were continuously under observation and part of the secondary armament was kept alert for immediate action. The remaining elements were held ready for action on one hour's notice.

The conduct of the operations of the Blue forces was based on the actual operations of the Black force. While the operations of the Black forces were controlled, both as to time and character, by the provisions of the General Instructions for the Conduct of the Exercises, the prescribed character of the operations in the five phases was used by the Blue forces solely as a means of determining the termination of the phases, and the time for alerting the personnel in preparation for the succeeding phases. The withdrawal of the Black fleet to its anchorage at the termination of each phase resulted in an approach at the beginning of the following phase which constituted, in effect, an overlap in the sequences of an assumed con-

tinuous operation. Action which would have been taken as a result of the situation existing at the termination of each phase was deferred until the approach of the Black fleet for the following phase.

An aviation intelligence journal, a naval intelligence journal, and an operations journal for each phase were kept at the Harbor Defense command post. Each Groupment and Group Commander maintained a combined journal. For each seacoast battery a tabular statement showing targets, time of assumed fire, and course, was kept. For those batteries commanded by officers, this record was kept at the battery. For other batteries it was kept by the Group Commanders.

The character of the operations of the Black forces, and the resulting action of the Blue forces were as follows:

a. First Phase:

(1) Time: Between 1400 and 1900, 26, May. The Black fleet approached the entrance to Block Island Sound from the southwest.

(2) The Blue inshore patrol was observing the approaches to Block Island Sound at the beginning of the phase. At 1402, observation planes were sent up to reconnoiter the approaches to Block Island Sound.

(3) After a report by a reconnaissance plane of the approach of the Black fleet, south of Block Island, which was confirmed five minutes later by the inshore patrol with close agreement as to location, the Blue Air Force took off, and delivered a bombing attack on the Black fleet eight miles south of Block Island.

(4) After entering Block Island Sound, the Black fleet proceeded to its anchorage.

b. Second Phase:

(1) Between 0130 and 0330, 27, May. The Black fleet made a night reconnaissance of the Harbor Defenses and withdrew.

(2) There was no aerial activity during this phase. The Black fleet approached from north of Block Island, turned at a point southeast of Fishers Island, and returned to its anchorage.

(3) The inshore patrol reported the approach of the Black fleet at long range; however, as all vessels carried navigating lights, and the visibility was excellent, the fleet was seen by the Fort Wright Groupment at about the same time. The ships were picked up successively by the two searchlights on the eastern flank of the groupment, and carried by the other lights, targets being assigned to the appropriate groups. Fire action by all armament of the Fort Wright Groupment was simulated during the phase.

c. Fourth Phase:

(1) Time: Between 1500 and 1700, 27, May. The Black fleet made an attack on the Harbor Defenses in support of a landing on Fishers Island.

(2) The Black fleet approached from the vicinity of Block Island, turned out at a point south of Fishers Island, returned to its anchorage. Following the main fleet, a destroyer division approached the eastern end of Fishers Island, simulating a landing attack. There were no Black aerial operations.

(3) Blue reconnaissance planes and a defensive pursuit patrol took off at the beginning of the phase. The approach of the Black fleet was reported by aerial observers, inshore patrol and terrestrial observers as soon as it left the vicinity of Block Island.

(4) The 16-inch gun opened fire on the leading cruiser at long range. The secondary armament of the Fort Wright Groupment attacked the destroyer screen when in range. The primary armament attacked the cruiser divisions, firing at ships in order in column. On the approach of the simulated landing force, the 3rd Group was ordered to attack it. The group was able to employ only one 6-inch battery against the division. The attack of the destroyer screen was taken over by the 5th Group (Fort Michie).

(5) The bombardment squadron, supported by pursuit and attack, made an attack on the Black fleet, southeast of Fishers Island, then made a second attack on the destroyers approaching the eastern end of the island.

c. Fifth Phase:

(1) Time: Forenoon, 28, May. The Black fleet ran by the Harbor Defenses and attacked the Naval Base of New London.

(2) The Black fleet approached from the vicinity of Block Island and passed through the race.

Two formations of eight planes each made bombing attacks on the Harbor Defenses while the fleet was approaching Fishers Island. A formation of thirteen planes made a bombing attack on the Submarine Base after the fleet had entered the race.

(3) The inshore patrol withdrew into Long Island Sound at the beginning of the phase to attack hostile vessels passing through the race.

(4) The Blue Pursuit Squadron was sent to attack hostile aircraft reported to be assembling over the Black fleet. It encountered and attacked the two bombing formations successively at a point east of Fishers Island. The bombardment squadron was sent up with instructions to await orders west of Fishers Island. It later made a bombing attack as the Black fleet was entering the race.

(5) The 16-inch gun opened fire on the leading cruiser at a range of twenty-five thousand yards. Eight minutes later, the 1st and 2nd Groups attacked the cruiser divisions, opening fire at ranges of about twelve thousand yards. The 3rd and 5th Groups attacked destroyers.

The exercises afforded an excellent test of the communications system and of the operation of the command posts. All elements functioned

smoothly and effectively. The weather conditions, however, made it impossible to conduct a comprehensive test of the value to the seacoast artillery of aerial reconnaissance and the inshore patrol. Throughout the period of the exercises the visibility was remarkably good—a condition which is very unusual in the locality—and visual observation from the shore fulfilled all requirements for intelligence within the Defensive Coastal Area.

The conditions of the problem having prescribed that the Army forces would have paramount interest in the operations, the plan of the Commander of the Blue Naval Force was based on the requirements of the Harbor Defense Commander for intelligence patrols within the Defensive Coastal Area, and on employing the force actually available for such offensive action in support of the Harbor Defenses as was consistent with the reconnaissance mission and the character of the vessels composing the force. Reconnaissance functions were performed effectively and the transmission of intelligence was prompt and adequate. During the first, fourth and fifth phases the submarines assumed positions suitable for delivering attacks on the Black fleet. The question as to whether or not the submarines could have delivered attacks and resumed their reconnaissance missions in a continuous operation was not tested, but it believed that the functions of observation and offensive action should be separate.

The value of the Naval District Liaison Officer as a member of the staff of the Harbor Defense Commander was demonstrated in these exercises. The officer who was detailed for this duty familiarized himself with the plans of the Commander of the inshore patrol and kept the Harbor Defense Commander and his staff posted as to its movements. His services were of particular value in assisting the intelligence officer in interpreting the information of the Black fleet received not only from the inshore patrol but from other sources.

The operation of the antiaircraft intelligence service emphasized the necessity for the training of observers in the identification and reporting of aircraft, and of the desirability of keeping them informed of the operations of friendly operations. The tests were sufficiently comprehensive to demonstrate the marked advantage resulting from the presence of the Air Force Commander at the Harbor Defense command post. Intelligence from all sources was immediately available for his use. Decisions could be made without delay and with a more thorough understanding of the situation than would otherwise be possible.

a. In addition to the primary purposes of the exercises in testing co-operation and combined action of the separate services and branches employed, the exercises afforded an excellent means of training Coast Artillery troops. The shortage of personnel makes it impossible to represent the manning of a complete Harbor Defense without a reassignment of personnel and the interruption of other training. Participation in the tactical functioning of the complete Harbor Defense adds materially to the interest

of the personnel in all other forms of artillery training. While the main purposes of the exercises might have been accomplished by the outlining of the Black fleet by a few ships, the actual presence of the force not only added realism to the exercises but afforded a means of conducting group-ment and group drills in battle action which can be conducted with only mediocre success and considerably less interest when employing the outlined or imaginary targets normally available.

HARBOR DEFENSES OF LONG ISLAND SOUND,

Fort H. G. Wright, New York,

19 May, 1930.

FIELD ORDERS,

No. 1.

Maps: Geodetic Survey 1:80000; Sheet No. 1212—Block Island Sound. U. S. Engineers Tactical Map, 1:62500; Charlestown, Stoningham, New London, Saybrook, Montauk and Gardners Island Quadrangles.

1. *a.* Black has unexpectedly declared war against Blue. The Blue and Black main fleets are containing each other in the vicinity of the EASTERN CARIBBEAN SEA. A detachment of the Black fleet consisting of six cruisers and eighteen destroyers has been reported in the vicinity of Latitude 45 N., Longitude 60 W.

b. (1) The Army and Navy forces in the NEW ENGLAND Sector jointly will protect shore establishments, commercial and naval shipping and will prevent Black from securing a foothold in any part of the coast line of the sector. The defense plan of the NEW ENGLAND Sector is being put into execution. The NEWPORT Sub-Sector contains the Harbor Defenses of NEW BEDFORD, NAR-RAGANSETT BAY and LONG ISLAND SOUND. Western boundary: Longitude 72° 10' W. for LONG ISLAND—thence CONNECTICUT RIVER in CONNECTICUT.

(2) Passages between FISHERS ISLAND and WATCH HILL have been closed by under-water obstructions, defended by mobile forces.

(3) The Blue Scouting Fleet is at GUANTANAMO but will not be able to leave before 24 May, 1930.

(4) A submarine force operating from NEW LONDON, CON-NECTICUT, supports the Harbor Defenses.

2. This command will occupy battle positions at once to deny the enemy the entrance to LONG ISLAND SOUND, protect naval and commercial shipping in NEW LONDON and support the NEWPORT Sub-Sector.

TROOPS

(For details of assignment, see Annex No. 1—Manning of Armament and Accessories).

a. Fort Wright Groupment.

Col. Alexander Greig, Jr., 9th C. A., Commanding.

b. Fort Terry Groupment.

Lieut. Col. John Lee Holcombe, C. A. C., Commanding.

c. Antiaircraft Subgroupment.

Capt. Mahlon M. Read, 11th C. A., Commanding.

d. * * * *

e. Observation System.

Maj. Charles A. French, C. A. C., Commanding.

f. Harbor Defense Aviation.

Lieut. Col. Gerald C. Brant, A. C., Commanding.

3. a. Fort Wright Groupment.

(1) Normal Zone:

Right boundary: FORT MICHIE—(incl.)—GARDNERS ISLAND (excl.)

Left boundary: EAST POINT (FISHERS ISLAND)—WATCH HILL (excl.)

(2) The groupment will conduct the artillery defense in its normal zone, support the Fort Terry Groupment and repel hostile landings on FISHERS ISLAND and FORT MICHIE. It will maintain continuous visual observation in its normal zone. At least two batteries of secondary armament will be kept alert for immediate action.

b. Fort Terry Groupment.

(1) Normal zone:

Right boundary: PLUM GUT.

Left boundary: Fort Michie—(excl.)—GARDNERS ISLAND (incl.)

(2) The groupment will conduct the artillery defense in its normal zone, support the Fort Wright Groupment and repel hostile landings on PLUM ISLAND. It will maintain continuous visual observation in its normal zone. At least two batteries of secondary armament will be kept alert for immediate action.

c. The Antiaircraft Subgroupment will cover the Fort Wright Groupment. *See Annex No. 2—Antiaircraft Artillery.

d. * * * *

e. The Harbor Defense Observation System will establish temporary observation posts at the following points:

(1) EAST POINT (FISHERS ISLAND).

(2) WATCH HILL C. G.

(3) QUONCHONTAUK POINT C. G.

(4) GREEN HILL POINT C. G.

(5) NEW SHOREHAM C. G.

(6) BLOCK ISLAND C. G.

(7) MONTAUK POINT.

It will maintain continuous observation of BLOCK ISLAND SOUND and the eastern and southeastern approaches thereto. It will make immediate reports of all hostile aerial and naval activity.

f. Harbor Defense Aviation, based at TRUMBULL FIELD, CONNECTICUT, will support the Harbor Defense. See Annex No. 3—Aviation.

x. (1) For location of searchlights and designations of water areas, see Annex No. 4—Searchlight Arcs and Water Areas. The use of searchlights for searching water areas will be restricted to the minimum. Searchlighting will be conducted only on orders of Group-ment Commanders.

(2) All units not continuously alert will be prepared for action on one hour's notice.

(3) For details of plan for beach defense see Annex No. 5 (omitted).

(4) For details of close defense of batteries see Annex No. 6 (omitted).

(5) Beginning 25 May, 1930, *Eastern Standard Time* will be used in all orders, messages and reports concerning the tactical employment of this command.

4. Administration will be conducted under existing regulations and orders.

5. a. Signal Communications:

(1) Permanently installed lines of communication are indicated on the Fire Control Diagram of these Harbor Defenses (Annex No. 7).

(2) For details of communication with Naval District Forces, see Annex No. 8.

(3) For system of naval and aerial recognition signals see Annex No. 9.

b. Permanent command and observation posts are indicated in the Fire Control Diagram (Annex No. 7).

C. H. HILTON,
Colonel, 11th Coast Artillery,
Commanding.

Annexes:

No. 1—Manning of Armament and Accessories.

No. 2—Antiaircraft Artillery.

No. 3—Aviation.

No. 4—Searchlight Arcs and Water Areas.

No. 5—Plan of Beach Defense (omitted).

No. 6—Close Defense of Batteries (omitted).

No. 7—Fire Control Diagram.

No. 8—Communications with Naval District Forces.

No. 9—Recognition Signals.

The Formation of the 69th Coast Artillery (AA)

By MAJ. G. B. ROBISON, C. A. C.

IT IS not a simple matter to state accurately where the formation of a new unit begins unless some arbitrary point is chosen. This point may be the day upon which initial returns are submitted, but it is obvious that much having to do with the formation must have occurred before that time. It would seem that there must first be the recognition of the need for the new organization; an evaluation of its desirability as contrasted with other activities; a preliminary study of the troops, materiel, and localities available; and a decision by proper authority to order the actions necessary. There will follow presumably, the selection of (1) the locality for formation; (2) the officers who are qualified and available for such assignment; (3) the troops to be transferred; and (4) a consideration of materiel to equip them to accomplish their mission.

In the case of the 69th Coast Artillery (AA), Aberdeen Proving Ground was selected as the locality for formation and Lieut. Col. James B. Taylor was selected as the Regimental Commander. The date chosen for the official formation was midnight of January 31-February 1, 1930. Colonel Taylor made the necessary preliminary arrangements with the Commanding Officer of the Proving Ground, Lieut. Col. E. M. Shinkle, and was the first to arrive at the station of his new regiment.

The First Sound Ranging Battery received orders on January 27, 1930, to change station from Fort Eustis, Virginia, to Aberdeen Proving Ground, Maryland, and to arrive there not later than January 31. The movement was to be by motor convoy. The transportation assigned to the battery was insufficient for the purpose. The first section of the convoy—carrying principally the materiel of the battery which was suitable to its future mission—left Fort Eustis on January 28. The additional vehicles required in this section were furnished by the 51st Coast Artillery and driven by its personnel. The section was commanded by First Lieutenant Wahle of the 51st. The remainder of the battery, consisting mainly of personnel, left their old station on January 29 in faster moving vehicles. The additional cars and drivers required in the light section were furnished by the Coast Artillery School at Fort Monroe. Captain McGarraugh was in command. Both sections spent the night of the 29th at Fort Humphreys where they had heated shelter. The weather was cold and during that night and next day fifteen inches of snow fell. The light section of the convoy with the personnel was able to maintain its schedule and arrived at the Proving Ground January 30. The materiel section remained at Fort Humphreys for two days, moving to its next scheduled stop, Fort George

G. Meade, on February 1st. Saturday and Sunday traffic conditions caused the section to remain there over the weekend. It arrived in good order on February 3.

It is a truism that men require food, shelter and clothes. Wooden buildings of wartime construction were available as regimental shelter and two mess halls were included. Since the men were already uniformed, clothing was a subsidiary problem of maintenance. The Sound Ranging Battery occupied one of these barracks and started a mess. Due to the wholehearted cooperation of the Commanding Officer of the Proving Ground and his assistants, these preliminary operations were accomplished smoothly, rapidly, and without undue hardships.

In addition to the two officers on duty with the First Sound Ranging Battery, Colonel Taylor and three other officers were present at the Proving Ground for duty with the new regiment on January 31. This briefly covers the situation prior to the official formation of the regiment at midnight of that day.

Without attempting to make a complete enumeration of the many elements involved in the formation of an effective, smoothly operating regiment, we may mention as essentials, sufficient personnel, proper materiel, adequate training, and good morale. To a certain extent these factors are interdependent, since a shortage of personnel or materiel will prevent adequate training and tend to lower the morale. An effort will be made to cover these points in the following remarks. Before doing so, however, it might be well to mention "paper work." Initial returns were prepared and submitted upon the official formation of the regiment, a personnel section and a headquarters section were organized, a table of organization and ratings was prepared, requisitions for desks, typewriters, stationery, Army and Technical Regulations and basic supplies were prepared and submitted and an officers' school was begun. All details of personnel were made from the former Sound Ranging Battery which became Battery A, the searchlight battery, on February 1. Battery A carried this overhead until after March 1.

The available buildings were inspected, measured, studied and assigned as barracks, storerooms, offices and messes. Until the 20th of February, the small number of enlisted men as yet present and available for such duty were employed in cleaning, repairing, and to some extent painting the interiors of these buildings in preparation for the arrival of additional troops; in conducting the mess; and in drawing supplies.

On the 20th, seventy-eight men arrived from Fort Hancock and were followed the next day by the band (one warrant officer and twenty-six men) from Fort Adams and a contingent of ninety-three men from Fort Banks. All these men created a very favorable impression by their appearance. Washington's birthday was celebrated by starting the second of the two messes and by interviewing, classifying, and assigning the newly

arrived men. New units were built up of men who had served together before their arrival insofar as was practicable. Several days were devoted to getting these men settled as comfortably as possible. At midnight of February 28, the regiment had nine officers, one warrant officer, and three hundred men; but fifty-eight of these men were absent on detached service or for other reasons.

Since space was not available for a dayroom in each battery, one building was set aside for use as a service club. It was well furnished with battery property of the former Sound Ranging Battery and subsequently completed by property belonging to the unit from Fort Hancock. Other batteries contributed a proportionate share of money which was derived from the parent organizations. Rugs, curtains, comfortable chairs, pool tables, writing desks, a reading room with a good and modern library of books and magazines, a sales counter for cigarettes, candy, and soft drinks, a radio and three barber chairs help to make a center of regimental life which fosters a spirit of unity among widely divergent groups and which constantly grows in popularity and success.

With the coming of March, the 69th assumed the duties of Post Guard (with the exception of the main gate). Since all troops except the band and the former sound rangers had not previously been armed with the pistol, instruction including firing was conducted with this arm for reasons of safety.

The enlisted strength of the regiment was gradually brought to its authorized figure of three hundred and twenty-eight by recruiting a generally excellent type of men. The shortage of officers remains fairly acute to the date of writing (June).

The sources of regimental personnel have now been indicated. The situation with respect to armament may next be considered. Pistols, in addition to the small number on hand, were supplied the first part of March, as were the antiaircraft machine guns and mounts. Two old sound locators, two old mobile 3-inch guns, an altimeter and an R. A. corrector were on hand at the Proving Ground and were drawn on memorandum receipt about the same time. Three new searchlights and two old lights were obtained from the Sperry Company and the Engineer Corps respectively about March 20. The only motor transportation available from the beginning was that brought by the First Sound Ranging Battery. This consisted of one Dodge five-passenger car, one each White reconnaissance, cargo, and radio truck, one GMC, three FWD's, and three motorcycles with side car. Since this was very inadequate, steps were taken at once to obtain the additional vehicles authorized. The Quartermaster Corps and particularly Colonel Stayer, the Commanding Officer at the Holabird Quartermaster depot, who was most directly concerned, made the greatest effort to provide suitable units in the minimum time. Fifteen men from the 69th were placed on detached service at Holabird to hasten deliveries

by assisting in the preparation of the vehicles. Transportation delivered to us to date in addition to that listed above consists of thirty-six Liberty trucks, four GMCs, three Duplex (searchlight) trucks, three each, water trailers and rolling kitchens; two Cadillacs, and one each, tank truck, ambulance, tractor and tractor trailer, and two motorcycles.

The problem of basic training as a soldier was of no immediate importance since nearly all of the enlisted men had previously received such instruction. On the other hand, gunners' instruction had few of the routine aspects. No instruction, with one small exception, had been given to any of the men upon the armament to which they were newly assigned. This instruction period normally extends from December 1 to February 28, but owing to the special conditions affecting the 69th, it was considered to begin with the official formation of the regiment.

In December and January a limited amount of instruction for an anti-aircraft searchlight battery was given to the personnel of the First Sound Ranging Battery. The most valuable part of this resulted from the courtesy and cooperation of Maj. James H. Cunningham, commanding the 61st Coast Artillery (AA) at Fort Monroe. A searchlight and sound locator were sent to Fort Eustis for a week. Demonstrations and instruction were provided by men from Battery A, 61st C. A.

Instruction pamphlets were obtained prior to the arrival of the men for the different grades and types of work so that no time was lost in starting or pushing such work to completion. The examinations were finished on April 29 with a very creditably high percentage of qualifications.

Of course, such instruction was accompanied by drills and firings. The machine guns were first fired on March 12, the 3-inch guns on March 21, and searchlight exercises were begun about the same date. These drills, firings, and gunners' instructions, together with the care and conditioning of motor vehicles, were continued through March and April.

The Chief of Coast Artillery, Maj. Gen. Gulick, inspected the regiment on April 2. This inspection included a review of the troops and the motor transportation, the various activities and state of training and resulted in the letter from General Gulick which was published on page 444 of the May issue of the COAST ARTILLERY JOURNAL.

The regiment was again inspected on April 12 by Maj. Gen. Sladen, the Corps Area Commander.

Record practices during May would have been the normal development of the training program. This was not possible, however, since the 69th acted in conjunction with the 62nd C. A. and a provisional air defense force in the exercises held at Aberdeen from May 8-16 inclusive. The Editor will probably publish a report of these exercises if he has the opportunity and it is sufficient to remark here that our participation was pleasant, interesting, and valuable to us.

The early part of May was devoted to short convoys in which all transportation was moved. On May 16, the Ordnance Department turned over to the 69th two fixed 3-inch guns which are equipped with torque amplifiers. On May 17, Lieut. I. H. Richie and a detachment from the 61st C. A. joined with the instrument trailer and the Sperry director which belong to that regiment. Drills and firings were then carried on in preparation for a demonstration target practice which was fired on May 31.

During a portion of May the searchlight battery had the opportunity to use the acoustic trainer and the gun battery, the stereoscopic tester and trainer. Both of these devices were considered very valuable and helpful in selecting and training suitable listeners and stereoscopic observers without waste of time.

The first part of June is being devoted to more extended road convoy problems. A road march has been made to Chestertown, Maryland, on the eastern shore and return, a distance of one hundred and forty-five miles. Camp for two nights was made near Chestertown and a searchlight demonstration with a plane from the Proving Ground was made for the residents. Gun and machine gun demonstrations, without live ammunition, were also given and a band concert provided. The population of the vicinity showed great interest in these military matters and the personnel of the regiment was treated in a most cordial manner. A similar trip to Westminster, Maryland, is scheduled for the near future.

Record target practices will be held as soon as additional necessary materiel is received and it is possible to adjust our program to that of the 62nd C. A. Practices for this and the next training year are contemplated prior to August 15. Upon that date begin the annual Coast Artillery-Ordnance exercises which will be conducted this year by the 69th C. A. as the representative of the Coast Artillery Corps.

The Role of the Army in the Winning of the West

By COL. S. C. VESTAL, C. A. C.

ON July 4th, 1778, the second anniversary of the Declaration of Independence, Lieut. Col. George Rogers Clark captured Fort Kaskaskia, a British post on the Kaskaskia River, about forty-five miles southeast of St. Louis, in what is now the state of Illinois. With one hundred and fifty men he had come down the Ohio River from Pittsburgh to take from the British and their Indian allies the lands which later were to form Kentucky, Illinois, and parts of Michigan, Ohio, and Indiana. When evening came, on that memorable Fourth of July, he stole into the midst of a garrison two or three times the number of his own force, posted his men advantageously, and then advanced in person to the entrance of the ball room, where the officers were having a dance. As he stood gazing at the revellers, the alarm was suddenly given; and the officers started to rush out of the room. He bade them to continue the dance, but to remember that they danced under Virginia and not Great Britain. His coming was so unexpected and his measures had been so surely taken, that he secured the post without bloodshed. One of his officers took Vincennes. When eighty of his men left him because of the expiration of their term of service, he recruited young Frenchmen of the region. The British recaptured Vincennes. Clark made an unexpected winter march and again recaptured it, with eighty prisoners. After hardships comparable to those endured by Arnold and his men on their march to Quebec, and far exceeding the sufferings at Valley Forge, he won the "Old Northwest" and put the United States in a position to demand it in the treaty of peace. As Colonel Roosevelt remarks, we probably would never have had any Northwest to settle, if it had not been for Clark's campaign of 1778-79. Thus began the rôle of the Army in the winning of the West.

The West had to be thrice won for the United States: first, from its foreign possessors, France, England, Spain, and Mexico; second, from its savage occupants; and third, against the almost impassable barriers of forest, staked plain, mountains, desert, and sheer distance. The struggle against the barriers of nature was the most difficult of all. In each of these struggles the Army led the way and bore the brunt of battle.

The great drift of the American people westward began almost simultaneously with the Declaration of Independence. Twenty-one months before that event, the victory of one thousand one hundred Virginia Militia, under Gen. Andrew Lewis, at Point Pleasant, West Virginia, over a thousand Shawnee Indians, in what is known as Lord Dunmore's War, had overawed the western Indians and made possible the settlement by whites of Kentucky and Tennessee.

Lewis' victory had been won by British subjects for British subjects. When the great westward march of the backwoodsmen began, an entire continent lay before them; but it was defended by its Indian population, aided and abetted by British commanders and British soldiers. The frontier was pushed steadily westward, not because American statesmen foresaw the continental greatness of the United States; but because the interest of the bordermen urged them continually westward, and the Government, which was a popular institution, was compelled to follow the movement and protect the settlers.

The Treaty of Versailles in 1783 brought peace between the United States and Great Britain on the ocean and along the Atlantic seaboard of North America, but not in the western wilderness. The British continued to occupy military posts within territory ceded to the United States by the treaty of peace and they supplied the Indians with arms and ammunition and encouraged them to attack the settlers. In the interval between the Revolution and the establishment of the Federal Government in 1789, a thousand souls perished in the Kentucky region by rifle, arrow, and tomahawk. The new Government inherited an Indian war.

The Government was most reluctant to make war on the Indians; and this very reluctance continually deceived the Indians and led them to make barbarous attacks upon the settlers. In our dealings with the Indians, we have made war inevitable, time and time again, by not being willing enough to fight. It has been our national sin, both in our dealings with the Indians and with foreign nations. When we have been once aroused, the poor Indian has had to suffer. A foreign observer of events, unacquainted with our national psychology, might well accuse us of pursuing a Machiavellian policy to induce others to bring on war by acts of aggression, so that we might carry on wars of conquest, apparently with clean hands.

In midsummer of the year 1790, General Harmar, who commanded a force of three hundred and twenty Regulars and one thousand one hundred Militia, was defeated by the Indians on the Maumee River. In 1791, General St. Clair, Governor of the Northwest Territory, undertook to avenge Harmar's defeat. Seldom in history has there been a more tragic defeat than that which came to General St. Clair. St. Clair himself was a zealous and high-minded man, but utterly unfitted by age, infirmities, and temperament for the exacting duties of commanding an army against a savage foe in a trackless wilderness. The real tragedy of the campaign lay in the fact that such men as George Rogers Clark, Anthony Wayne, and Daniel Morgan, who were still living and in the prime of life, were unemployed when the country sorely need their services.

St. Clair had two small Regular regiments and a larger body of six months' Levies and Militia. The officers were men of character and courage, as most of them showed by dying bravely on the battlefield; but they were inexperienced. The men were the offscourings of the eastern cities.

The whole force was hastily gathered together and rushed to the frontier without the training necessary to make it into an efficient instrument of war.

Washington, who remembered vividly the scenes of Braddock's defeat, warned St. Clair of the dangers to be encountered and of the watchfulness required to prevent the Indians from approaching his column within arm's length unperceived as it went through the forest.

On November 4, 1791, St. Clair was attacked shortly after sunrise, in his camp on the eastern fork of the Wabash, high up where the stream was only about twenty yards wide. A desperate battle ensued. Two days before the battle he had sent one of his Regular regiments in pursuit of Militia deserters, so that he had only half his Regular force in the fight. Most of the officers were killed. St. Clair's clothes were pierced by eight bullets and a bullet carried off a lock of his hair; but he was untouched. After hours of fighting the remnants of the force broke through the cordon to the rear and then began one of the wildest routs in history. The Indians pursued about four miles. Nine hundred and ten men were killed and wounded out of a force of about one thousand four hundred in the fight.

Washington selected Maj. Gen. Anthony Wayne to avenge the defeats of Harmar and St. Clair. When he reached the Ohio in June, 1782, he began a long period of careful training. Like Marius when he was appointed to command against the Cimbri, Wayne purposed to have a veteran army before he risked all upon a single battle. He passed the first winter in a camp on the Ohio about twenty-seven miles below Pittsburgh, and the second winter at Camp Greenville about eighty miles north of Cincinnati. His presence in the theater of war drew all the hostile Indians toward him; and thus he protected the settlers from marauders. He taught the infantry to shoot and to use the bayonet and the cavalry to use the sabre.

On August 20, 1794, after many preliminary battles and skirmishes, Wayne marched to attack the Indians at a place known as the Fallen Timbers, near a British fort, on the Maumee, in northeast Indiana. His Army numbered three thousand, of which two thousand were Regulars, and the rest mounted volunteers from Kentucky. The Indians were formed for battle in a long line. They won a momentary success when they drove in some mounted men; but in less than forty minutes they were defeated and driven in headlong rout for two miles, the cavalry halting only when under the walls of the British fort. It was done so quickly that less than one-third of Wayne's force got into the fight. The Indians lost heavily, particularly in chiefs.

The British commander demanded Wayne's intentions. Wayne replied that he thought they were sufficiently evident. The Englishman complained that Wayne's soldiers had come within pistol shot of the fort; and threatened to open fire, if they did it again. Wayne demanded that he surrender, which he refused to do. Wayne ordered everything to be

destroyed up to the walls of the fort; and his orders were carried out literally. The Indian villages were burned and their crops cut down; and all the houses of the British agent and traders were razed to the ground. Washington had authorized Wayne to attack this post if it was necessary for him to do so in order to carry out his operations against the Indians. The British commandant did not interfere or make good his threats; and it was not necessary for Wayne to storm the fort. Thus the Indians learned that while the British might encourage them to commit hostile acts against the Americans, they would not support them in their hour of trial.

The United States was sadly in need of a victory over the Indians at this time; and never was a victory more complete or more far-reaching in its effects. It brought peace to the old Northwest Territory. It ended a war that had been going on for forty years. Aside from the events of the War of 1812, there were only two small Indian uprisings in later times in the vast area northwest of the Ohio River: first, a small outbreak in 1811, which was easily suppressed by Gen. William Henry Harrison at the Battle of Tippecanoe, and second, the bloodless Blackhawk War in 1832, in which Abraham Lincoln took part as a captain of Militia.

Before the end of the Eighteenth Century Americans had begun to cross the Mississippi River into the territory of Orleans and the District of Louisiana; and in some places they were soon dominating the affairs of the community. The great exploring expeditions carried on by Army officers beyond the Mississippi River in the administration of Thomas Jefferson had their inception in the peculiar scientific turn of mind of the President, who desired to learn what lay in the great unknown West. The greatest of these expeditions, that of Lewis and Clark, was recommended to Congress by Mr. Jefferson before we acquired Louisiana; and the preliminary steps were undertaken quite independently of the happy series of events by which Louisiana became our territory. Before the expedition actually started, Louisiana had become a part of the United States and the movement was no longer a foray into foreign territory.

Lewis a captain of infantry, was Jefferson's private secretary; Clark, a second lieutenant of artillery, had served as a private in the forces that had put down the Whisky Rebellion. Both had taken part in Wayne's Battle of the Fallen Timbers. Lewis was of the family of the victorious Militia Commander in Lord Dunmore's war. Clark was a brother of George Rogers Clark. The Lewis and Clark families played truly great parts in the winning of the West.

While the chiefs were instructed to look out for the best places for the establishment of trading posts with the Indians, the expedition was, in fact, purely a voyage of exploration designed to cross the continent and report upon the geography, physical character, zoology, and human inhabitants of the far West.

The headwaters of the Missouri were absolutely unknown; we were

ignorant of the existence of the Rocky Mountains, though the range farther north in Canada was known as the "Stonies"; and what lay beyond was a complete mystery. We now had an efficient Government, and exploring and fighting were not henceforth to be the work of the settlers alone. Jefferson, as he wrote to Lewis, on November 16, 1803, hoped to discover "the direct water communication from sea to sea formed by the bed of the Missouri and perhaps the Oregon."

There were thirty-seven men in the expedition, fourteen soldiers and twenty-three civilians, all of whom, with the exception of one negro servant, were enlisted as soldiers, so that they might be kept under a regular discipline.

The expedition left St. Louis in May, 1804; and passed the first winter on the site of Bismarck, North Dakota, where a sergeant died. In the spring of 1805, having sent a party of ten down the Missouri, with a report for the President, and having recruited their party to thirty-two adults, the two explorers started on a long drive for the Pacific, which they reached in November. They passed the winter on the Oregon coast, began their return journey in the early spring of 1806; and reached St. Louis on September 23rd.

They had gone through vast regions never traversed before by white men; had encountered the grizzly bear and many strange animals; and had had one fight with the Blackfeet Indians, in which one Indian was killed. They suffered no real hardships except in cases where members of the party got lost and exhausted their power before finding the party. The two officers made a most interesting and important report to the President.

Scarcely less important were two expeditions made about the same time by Lieut. Zebulon Montgomery Pike, one to the headwaters of the Mississippi, and the other to the springs of the Arkansas and the Rio Grande, with detachments of the Regular Army. Pike passed the winter of 1805-6 in Minnesota. He did not reach Lake Itasca, but he did explore the Leech Lake system, which he mistook for the source of the Mississippi. He compelled the traders to haul down the British flag in this region and hoist the American colors. In July, 1806, he started from St. Louis on his westward trip and in November reached the neighborhood of Pike's Peak, which was afterwards named in his honor. After great suffering the party reached the Rio Grande, in Spanish territory. Here they were taken by a Spanish mounted force of one hundred men and conducted to Santa Fe. Pike soon realized that a great and unexpected opportunity was coming to him. He and his men were treated with great courtesy and returned to the United States via Chihuahua and Texas. Pike collected a great mass of information which put the Southwest in a new light not only to the prospective trader and adventurer but to the entire people of the United States. His report had far-reaching effects.

The work of Lewis, Clark, and Pike was continued by a host of military explorers, who mapped the country and opened the way to occupation and settlement. The most notable of these explorers was John C. Fremont, who in three expeditions in the Government service completed the survey across the continent from Missouri to the mouth of the Columbia; and dispelled the general ignorance about the main features of the country west of the Rocky Mountains, the Great Salt Lake, the Great Basin, the Sierra Nevada Mountains, and the fertile basins of the Mexican province of California.

During the Mexican War, Gen. Stephen Watts Kearny extended our territory to include New Mexico and California. His Army of the West started out with fewer than two thousand men, but they were fighters who had confidence in their leader. Despite short rations and desert hardships they made remarkable marches and accomplished results of great importance. Santa Fe was occupied without bloodshed on August 8, 1846, and in September General Kearny, with a small fraction of his command, pushed on into California. In a sharp action at San Pascual, California, on December 6, 1846, the Americans defeated nearly twice their number of Mexican troops, but suffered severe casualties in so doing. General Kearny received two wounds from lance thrusts in this action, but continued in active command of his troops. Aid from Colonel Fremont and Commodore Stockton, who landed about five hundred sailors and marines at San Diego, enabled General Kearny to complete the conquest of California.

Within seventy-five years from the signing of the Declaration of Independence, the first phase in the winning of the West had been completed. The Army carried our flag westward, first to the Mississippi, then to the Rockies, and finally to the Pacific. Much remained to be done in subduing hostile Indians, and in opening up trans-continental transportation routes, and the Army played an important part in that work. The fact remains that many of our people might have settled under foreign flags had our Army not led the way. Its share in the winning of the West has had a vital influence upon the destiny of our nation.

Fuels and Power Plants

By MAJ. SIDNEY S. WINSLOW, C. A. C.

IT IS believed that this short article on fuel and engines might be of value at this time. There are so many conflicting claims about the various types, much of it propaganda, that the average person has no idea of the true state of affairs. Most of the material contained in this article is based on lectures given at the Massachusetts Institute of Technology and has probably never been published.

Generally speaking, there are two commercial fuels, coal and petroleum, in its various forms. The first question to decide is: should they be used directly in an engine or burned under a boiler.

Extensive experiments have been conducted in the use of powdered coal in a heat or explosive type engine. Powdered coal engines will run but they have one difficulty: lubrication of the cylinder walls. The exploded coal dust leaves a certain amount of ash behind it, which mixes with the lubricating oil and forms an abrasive. No way has been found to meet this difficulty. Gasoline is too expensive a fuel for heavy duty power purposes.

So in planning a power plant we have for consideration:

- a. The Diesel power plant.
- b. The oil burning steam power plant.
- c. The coal burning steam power plant.

It is simply a question of economics. Many articles have been written showing that America is hopelessly behind the times because we have not gone in extensively for Diesel engines, particularly in merchant ships. Much of it is propaganda. It is purely a question of economics and reliability, and each case has to be considered on its merits.

The first item is reliability. The first Diesels had difficulties for various reasons, which created an unfavorable opinion of them in this country. At the present time both steam and Diesel engines are reliable. Diesel ships have been sailing the oceans now for fifteen years, with very little trouble. Diesels are not used by navies except in submarines. However, the new German cruisers not yet in commission will be powered with Diesels. Steam engines and boilers are not convenient for submarines, although they have been used. Diesels are reliable if in good order. However, a steam engine will run after a fashion, when hopelessly out of order, where a Diesel would fail altogether. Also in a pinch when short of fuel, a steamer can burn a mixture of oil and ashes, wooden furnishings or even part of the cargo. The Diesel must have its proper fuel. Diesels are satisfactory in the merchant marine, but motor ships occasionally have to be towed home. Steamers seldom have to be towed in on account of engine or boiler troubles.

Diesels are little used for land power plants because most commercial firms require exhaust steam for processing or heating. Some steel mills use them. There should be a field for them in big electric generating plants, but they are not found there. These concerns may be considering the possible exhaustion of our oil fuel resources and the very probable rise in price. Actually, the Diesel is not so much superior to a well-designed steam plant as some manufacturers would have you believe.

If a power plant is to be built, one must decide whether to make it a steam plant burning coal or oil or a Diesel plant. It is a question of costs. First cost, upkeep, and fuel cost must all be considered. As Diesels are little used ashore these costs are not readily available but some idea of the cost of operation of marine power plants can be given.

First, the item of original cost. A good Diesel power plant, in this country, costs from fifty to one hundred per cent more than a good steam plant complete. Abroad it might cost only thirty per cent higher, but the tariff removes that gain. For a ten thousand-ton ship of about twelve-knot speed, the steam power plant would cost about five hundred thousand dollars. The Diesel would probably cost more than seven hundred and seventy thousand dollars. Then, too, the capital charges on this investment—"overhead"—should be considered. Interest—probably six per cent; depreciation—five per cent; insurance—four per cent, a total of fifteen per cent a year. This means seventy-five thousand dollars for the steam, one hundred and fifteen thousand dollars for the Diesel. Some way must be found to save forty thousand dollars a year on the Diesel plant or it is not worth while.

The next item is fuel costs. Various fuels are sold in different ways and give various efficiencies, so we must consider several items on this point:

a. Consumption:

Diesel, 0.4 lbs. per BHP hour.
Oil burner, 1.0 lbs. per BHP hour (old ships)
Oil burner, 0.65 lbs. per BHP hour (latest ships)
Coal, 2.0 lbs. per BHP hour (old ships)
Coal 1.5 to 1.07 lbs. per BHP hour (latest ships)

This partly explains the large shipping board fleets at anchor in various places.

b. Fuel costs, on Atlantic coast, about one year ago:

Steam—coal, \$5.50 per ton
Diesel oil, \$14.40 per ton
Boiler oil, \$7.00 per ton

The price of the oil fuel may increase considerably at any time. Coal, barring strikes, should remain fairly constant. Abroad, Diesel oil is cheaper than boiler oil. This may partly account for popularity of Diesels abroad.

c. Ratio of fuel costs.

	<i>United States</i>	<i>Europe</i>
Diesel	1.06	0.63
Oil Burning	1.00	1.00
Coal	1.07	No data

There would appear to be little saving in fuel costs in favor of the Diesel.

Diesel power plants are efficient, regardless of size. Steam power plants in sizes too small for economic installation of proper auxiliaries are not so efficient. The new Edison electric light plant at Quincy, Mass., with boiler pressures of one thousand one hundred pounds per square inch is remarkably efficient.

Repair items. No good figures are yet available. Diesels have no big major overhauls such as reboiling, but it is thought that the cost of upkeep, year in and year out, is slightly higher than for steam.

Crew cost. The Diesel plant requires a smaller crew, but the men are higher paid. There is little economy here.

Weights and space occupied. This is important aboard a ship that can regularly get full cargoes. The Diesel plant weighs about one-third more than the complete steam plant, and actually takes up more room. The weight of fuel is less for the Diesel. This is important for ships on long runs, carrying full cargoes when fuel storage space would cut into cargo space. These conditions are rare in the shipping business today.

The Diesel seems to have few if any advantages for American shipping operations, except for small installations that run part time such as fishing boats, yachts, tugs, etc. They may use them to advantage.

The coming fuel appears to be pulverized coal. This has been developing for about ten years until now about fifty per cent of the new land power plants under construction are of this type. The coal is ground to the fineness of very fine flour. This makes it profitable to use the cheapest grade of slack coal—dirty soft coal. Each boiler furnace has its own grinder, electrically operated, which grinds coal as needed. The very fine coal dust is blown into the furnace and burns as oil does, in a torch flame. There seems to be little ash. It probably goes up the stack and comes down on the family wash. Pulverized coal is as cheap as oil and when the price of oil increases, will probably replace it. It is now in successful use on about three Shipping Board vessels, as an experimental development.

Diesels for Army work are not favored. Their only advantage is in cost of fuel and, perhaps, fire danger. In time of peace, they run so little that fuel cost makes little difference. In time of war it also would make no difference. It should be possible to avoid fires. The gasoline engine is so much easier to start than the Diesel, particularly by partly trained men, that they would seem much preferable for Army use.

It may also be of interest to consider briefly the three types of steam

installations used by merchant marine and naval services. The first, and longest in use, was the reciprocating type of engine. This gave many years of service and was very reliable, but was not particularly efficient because with cheap coal, no one bothered about efficiency. The low efficiency is due much more to heat losses than to the continual reversal of direction of the moving parts, as most people believe. About the time an attempt was made to improve this engine the turbine came on the market, and the reciprocating engine simply dropped out of sight. The reciprocating engine has the advantages of ruggedness, simplicity and ease of repair. With exhaust turbines using their exhaust steam at pressures below atmospheric, they are very efficient. Two fairly new liners, the *Olympic* and the *Rochambeau*, are of this type, and very successful.

The turbine, when it came on the market, swept all before it. Turbines are small, compact and efficient, and revolve always in the same directions. There is reciprocating motion, no vibration. They have, however, one serious disadvantage. They are essentially high speed devices—four thousand to five thousand revolutions per minute. This is too high a speed for most purposes, except electric generators. Most everything else requires a comparatively low speed, and efficiency is lost in the reduction through belts or gears. In marine work this reduction of speed has usually been accomplished by reduction gears. This system is used for practically all naval vessels except the United States battleships.

The turbine, too, has certain disadvantages, particularly for marine work. Turbines revolve in one direction only. Ships have to back in maneuvering, which means an additional set of backing turbines, which run idle when the ship is going ahead. Also, any engine is most efficient for a certain designed speed. If much running at a lower speed is done, there is a loss of efficiency. Naval ships have various maximum speeds, but the fleet cruises at ten knots.

After some experiment, the United States Navy brought out the electric drive ship, first on a collier, then on battleships and the airplane carriers, *Lexington* and *Saratoga*. Here are generators, directly connected to turbines and motors directly connected to propeller shafts. The generators run at the efficient speed for the turbines. The motors at proper speeds for propellers. Consider the case of the *Lexington* or *Saratoga*. They have some sixteen boilers for oil fuel. They have some four main generators, two motors on each propeller shaft and various auxiliaries. They have a maximum speed of about thirty-three knots. For speeds up to twenty-five knots, two generators only are needed, and only about half the boilers. The others are not running inefficiently—they are simply shut down. These boats are wonderfully flexible and maneuver very handily. Electric drive is not used on cruisers nor destroyers because the weight is greater than for geared turbines. The English and the Japanese do not use them.

The electric drive idea has taken hold slowly in the merchant service, but it is taking hold. Electric drive has been used in ferry boats and railroad tugs around New York City for some time, particularly in connection with Diesel engines. It is wonderfully flexible for crowded shipping areas. It is also in use in three new large passenger liners, the *Virginia*, *Pennsylvania* and *California*, recently built at the Newport News Yards. They are on the New York-San Francisco run, and have proven very satisfactory.

MORE WORK FOR THE ANTIAIRCRAFT

The sale of Hog Island to the City of Philadelphia under a contract which provides for development of the property as a marine, air, and rail terminal for the sum of three million dollars has been authorized by the Shipping Board.

The terms of sale require a down payment by the city of four hundred and fifty thousand dollars and a guarantee that the sum of five hundred thousand dollars will be expended at once for grading the portion of the land to be used as an airport. It is likewise provided that improvements to the water front will be undertaken on the responsibility of the city. During the first ten years of the city's ownership of the property the amount of three per cent per annum will be paid on the unpaid balance of principal as ground rental or interest and during the following ten-year period the amount of six per cent per annum will constitute this rental.

At the northerly end of the island's water front a seaplane landing basin having shore frontage of one thousand four hundred feet has been provided, leaving approximately thirteen thousand feet of water front for the marine terminal features of the project. All the area immediately back of this strip has been reserved for rail terminals and warehouses, and the remaining three hundred and seven acres of backland will constitute the airport.

Philadelphia has been negotiating for the Hog Island site for many months.

Searchlights in Air Defence

By MAJ. J. S. BAINES, R. E.

EDITOR'S NOTE: *The following article by a British writer appeared recently in The Army Quarterly. It should be recalled that the British air defense organization differs from ours. Air defense is under control of the Royal Air Force. The Royal Air Force furnishes aviation, the Royal Engineers furnish searchlight and sound locator personnel, the Royal Artillery furnishes antiaircraft guns and the personnel to handle them. Throughout British writing on the subject of air defense a decided leaning towards the use of barrage fire may be noted. A much wider use of searchlights to assist friendly air forces is contemplated than in our service.*

THE primary rôle of antiaircraft searchlights is to provide artificial daylight in certain areas so that antiaircraft batteries or fighter squadrons may be able to engage the enemy there by night as easily as by day. They have also other duties of which, in certain circumstances, the most important is the collection and dissemination of intelligence.

It is proposed to consider their employment (a) in what may be called fortress warfare, (b) in field warfare, and (c) in the defence of India.

Much, in their tactical handling, will be the same in all three cases, but it is the differences in the conditions which it is desired to stress, with the object of emphasizing certain factors which might, it is thought, affect the future design of searchlight equipment.

For those who are unfamiliar with antiaircraft defence it may be said that a searchlight station is manned by a detachment of eight or nine men under a noncommissioned officer, and is equipped with a searchlight, with generating plant to provide current for the lamp, with listening apparatus for locating aircraft by sound, and with a Lewis gun on an antiaircraft mounting. In field units the detachment and its equipment are carried on a lorry, which also, when in action, generates the necessary electricity; so that the whole is a very mobile self contained unit. A company consists of twenty-four detachments, divided into four sections. A lighted area is made up by a number of searchlight stations sited about two miles apart. As a hostile aircraft approaches the outer light stations, beams are directed on to it by means of the listening apparatus. When the target has been picked up it is held by three beams only, being passed across the lighted area, one station disengaging as another engages. It is practically impossible for a heavy bombing machine to escape by "jinking" when so held, except by flying into cloud, when it will still be followed closely through the action of the listeners.

In the meantime, in large defences, the height, position and course of the target is continuously being determined by instruments in special R. E. observation stations, or, in some conditions, by means of angular observations taken at the searchlight stations themselves and transmitted by telephone to the observation stations. At the defence headquarters is a large-

scale map and, as information comes through, coloured counters representing each hostile machine or formation are placed on it, so that the defence commander can see the actual situation at any moment.

FORTRESS WARFARE

By this is implied operations like the attack and defence of London in the last war, where a highly organized and determined defence endeavours not merely to inflict a maximum of loss on the attack but definitely to prevent any machine reaching its objective and dropping bombs.

Now by far the most effective weapon against aircraft is attack by other aircraft, and defence of this nature will depend, therefore, principally upon the R. A. F. Guns are also required for certain purposes, but they cannot be used during an air battle for fear of hitting their own aircraft. A definite zone across which the enemy must pass in his attack must, therefore, be set aside as restricted to fighting aircraft. This must be well supplied with searchlights.

With a well-lit fighting zone of some depth and with a sufficiency of defending fighter squadrons, it may actually be harder for bombers to pierce the defence by night than it is by day, at least in a sky which is clear or has broken clouds. By day, especially if there is light cloud to fly in and out of, the attacker may be able to get well into the fighting zone without being observed by defending patrols; by night, however, the searchlight beams act as pointers for the defence. Again, the beams will to some extent blind the bombing pilot, while the fighter can attack unseen, keeping out of the beams. Formation flying, too, is difficult and dangerous at night, so that bombers are unable to make full use of their superior armament by giving each other mutual support. It is possible, therefore, that in any future war, attacks on heavily defended areas may, in fine weather, be less frequent by night than by day.

When, by night, the sky is covered by an unbroken bank of clouds the conditions are slightly more favourable to the attack. A bomber may be able to escape from a fighter by entering a cloud bank. But flying inside a cloud which is lit up by searchlights is not pleasant. A layman's impression is that of being smothered in glowing cotton wool, and the known presence of other aircraft nearby, friendly and hostile, does not add to the peace of mind of a pilot who cannot, almost literally, see a yard in front of his nose. He will prefer, therefore, to fly either just below the cloud, when he and his shadow will both be clearly seen against it, or just above it, when, to a fighter above him, he will again show up against a white carpet of cloud, lit by those rays of the beams which have pierced it. In the latter case, of course, the work of the searchlights will be dependent on the listeners, who must be able readily to control the beams. The intensity of the beams and their power of penetrating cloud must be a maximum.

It has been assumed, hitherto, that there are fighting aircraft in the air ready to meet the enemy. But fighters have a limited petrol capacity and all machines a limited life in flying hours. To keep patrols constantly in the air, day and night, "for the duration," would be out of the question. Some few minutes' warning is therefore needed to enable pilots to take off and reach fighting height. This is given by an observation system extending for many miles from the fortress, and an approximate estimate of the position, height and course of any hostile raiders, at any moment during their flight, is shown by counters on the map at defence headquarters. But as a raid approaches the fighting zone more detailed and accurate information is needed, to enable the defence commander to launch fresh squadrons or to direct those already in the air by means of radio-telephony or ground signals. This information is given by the searchlight units, as previously described. In fairly clear weather it can be given almost continuously with great accuracy, but less easily in thick weather.

Yet it is in thick weather that it may be most needed. With a fog reaching down to the ground, fighters cannot be sent up with any hope of either encountering the enemy or of being able, later, to find a landing ground. The enemy, too, cannot do any accurate bombing, but by wireless he can get cross-bearings from his own country, which will give him his position to within a quarter of a mile; and that, with a target such as London or Paris, will enable him to do much material damage. The defence will have to fall back upon artillery barrage fire.

Barrage fire involves fixing a "date" between the enemy and a shell. If the former is at A one minute at a known height, and at B the next minute, it can be prophesied when he will reach C, provided he does not change course. The Royal Artillery arranges for what happens at C. The Royal Engineers have to collect the when-and-where data for A and B, which must be done by means of listening apparatus; and searchlight stations, possessing these, are used for this purpose. A reliable system of telephone communication with each station is, of course, essential.

Searchlight stations in a fortress have two great advantages. There is no need for projectors and generating plant to be mobile, so fixed plants can be installed; and the whole workshop resources of the fortress are available in case of necessity. Much more elaborate and delicate apparatus can confidently be used, therefore, than is possible in the field, where moves over rough country may be frequent and repair facilities meagre.

As a war progresses, it is probable that the base areas will gradually acquire the nature of fortresses, from an air defence point of view. It is very possible that the lighted area may be cut into by a large harbour or estuary which will prevent a normal disposition of searchlight stations. This may have to be dealt with by cooperation with the Royal Navy and, or, the provision of floating plants on rafts or barges.

FIELD WARFARE

By field warfare is to be understood the protection of railheads, ammunition dumps, petrol dumps and similar places in the theatre of operations.

On examination it will be found that the air defence of a small vulnerable point of this kind differs in almost every respect from that of a fortress.

It is likely to be within a comparatively few miles of the front, and so raids by fast machines may be expected without sufficient warning to enable the R. A. F. to take part in the defence, even were it practicable to disperse fighter strength so as to have machines at every little place that needed protection. The defence must, therefore, depend on AA guns and Lewis guns.

It will be impossible to beat off a determined raid completely, i. e., to prevent any bombs being dropped. The defence will hope to make attacking pilots change course and height and so stop accurate bombing by preventing proper use of bomb-sights, and also to cause sufficient loss to make the enemy wish to carry out this next raid elsewhere. The guns and lights allotted to the defence will be the minimum considered necessary to achieve these objects.

The bombing of a small point, to be of any value to the enemy, must be accurate; and this demands a good view of the target. Raids are probable, therefore, in fairly clear weather, and barrage fire, needed in thick fog in fortress warfare, will never be required. The R. E. will not, therefore, be called on for data for this, nor are accurate plottings of the enemy's course of any use to the R. A. Heights of targets only need be passed to them from the R. E. observation posts. It is not, therefore, necessary to have telephones at light stations for tactical reasons, though they should be connected up as soon as possible for administrative purposes. Cloud penetrating qualities in the beams are not so essential as in fortress defences.

The positions of the object to be defended (e. g., a railhead, or the supply laager of an independent mechanized force) may be constantly moving; large workshops will often be difficult to get at; and searchlight stations, to get a proper distribution of lights, will often be in places well away from roads. The vehicle carrying the equipment must have first-class cross-country performance. The equipment must be able to stand frequent loading up and off-loading without injury. Reliability must be the first and foremost consideration. To complicated construction, in itself, there is no objection if combined with robustness, but all delicate apparatus must be avoided. One light out of action may make a serious gap in a small lighted area.

When close to the line, searchlights will be liable to attack by low-flying aircraft and often by artillery. The first necessity on coming into a new

position will therefore be to dig-in the projector. This rules out any possibility of mounting the projector permanently on a lorry.

Saving of man-power is always a prime consideration, but with mobile plant, as opposed to fixed defences, this cannot be attained solely by reducing the number of men needed for the tactical handling of the light in action. There is great strain on a detachment which has to move frequently: travelling by day, in action at night, erecting and dismantling equipment and excavating new positions. If numbers are cut down below a certain minimum, this strain may overtax the endurance of the men.

THE DEFENCE OF INDIA

The intensity of night attack on the North-West Frontier is likely to be much less than in the cases already considered. Objects of attack might be dumps, railheads and transit points in certain cantonments, strategic bridges and Peshawar. Most of these are small targets which could only be found in the dark by well-trained navigators, after an approach flight over difficult country. An attack on anything as far east as the Indus would have to encounter our own fighters, who would receive ample warning when the enemy crossed the border. These would need the help of searchlights.

Searchlights should be installed as permanent defences; the nature of the country would make the sudden use of mobile units both difficult and hazardous. For each vulnerable point the expenditure in men and money required by such defences must be balanced against the probability of night raids and the degree damage to be expected from them. It may merely be said that the offensive power of a hostile air force could probably be increased much more quickly than could an inadequate searchlight defence at such a distance from England.

The lights would presumably be manned by Indian troops, Sappers and Miners, who in many ways should be at least equal to Europeans. The spotters and listeners in particular should prove excellent. But their equipment must be simple. British warrant officers and staff sergeants would presumably be available as military mechanists in each unit, but all that was said about the objections to delicate machinery in field warfare applies even more strongly in the case of Indian personnel.

The most difficult question is that of local protection. It would be quite impossible to dot the frontier with detachments of ten men, each of whom, though armed with a rifle, would have his own special antiaircraft job when in action in a country inhabited by tribesmen of very uncertain temperament; each engine-driver alone with his lorry three hundred yards from the light, so that its noise should not interfere with the listeners. A searchlight projector, too, would make a delightful target for snipers when in action.

Infantry protection would be impracticable. To give four or five in-

fantry to each searchlight station would make control by their own officers quite impossible and might cause difficulty through the mixing of units. Moreover, every formation is responsible for its own protection. The following solution of the problem is offered.

Each searchlight station should, as far as possible, be sited on high ground and be overlooked as little as possible by other high ground within rifle range. (This is a counsel of perfection.) It should consist of a small fort, long and narrow, with a detachment sufficient to serve the light and to provide the necessary sentries for local protection. The projector would be in a turret at one end of the fort and the listening apparatus in another at the other end, far enough away only for the noise of the arc not to interfere with listening. The generating plant, a stationary set, should be underground and should have best possible silencing arrangements. There should be a track to each station practicable for six-wheelers for the supply of rations and of fuel for the generating plant, or for armoured cars in case of serious attack. Visual as well as telephonic communication should, if possible, be provided with section headquarters.

For a searchlight unit in an army advancing across the frontier the principles of field warfare apply, modified to suit the special Indian conditions just mentioned. Local protection would again be the chief problem. The detachment and its equipment would have to be dug in, or protected by sangars; and increased personnel would be required, for the lorry would have to be kept well away from the light for silence reasons, making two points to be defended in each station.

CONCLUSION

The points which it was hoped to bring out may be summarized as follows:

(a) Fortress Warfare.

(1) Searchlight beams must be of the maximum intensity and readily handled under the direction of the listeners.

(2) The plant need not be mobile and delicate apparatus is permissible.

(3) It must be possible to determine the position and height of the enemy's aircraft quickly by sound alone, and good telephonic communication is necessary for this.

(b) Field Warfare.

(1) Extreme intensity of the beam and great accuracy against hidden targets are secondary to reliability of the equipment. No delicate apparatus should be relied on.

(2) The vehicle must have good cross-country performance and the projector must be easy to dig in. The projector cannot, therefore, be mounted permanently on a lorry.

(3) Telephones to searchlight stations are not essential tactically, though very desirable for administration.

(4) Because of the strain involved in frequent moves, it may not be possible, by improved equipment, to reduce the numbers of a mobile detachment to the same extent as in the case of fixed defences.

(c) Defence of India.

(1) Searchlights, as required, should be installed as permanent defences.

(2) The lights should be manned by Indian sappers and the equipment must be simple and reliable.

(3) Detachments must be strong enough for their own local protection.

(4) Stations should be in small forts with access for armoured cars, with visual and telephonic communication to section headquarters and with fixed generating plant underground.

(5) The projector and listening apparatus should, as far as possible, be armoured.

It is believed that the questions of the re-equipment of our existing mobile units and of the formation of Indian searchlight units have not, as yet, been gone into deeply; and it is with respect to these that the above points have been put forward. One type of equipment will not suit all three conditions.

**PHYSICAL EXAMINATIONS OF WEST POINT
CADETS FOR AVIATION**

The physical examinations of two hundred and eleven cadets out of two hundred and forty-seven in the class of 1930 who applied for detail in the Air Corps were conducted prior to graduation by a board of five flight surgeons. Seventy-nine of those examined failed to pass the examination. Ninety-one qualified for flight training, ten were previously accepted and thirty-one had minor defects which must be waived by the Chief of Air Corps before admission to the flying school.

From the Foreign Military Press

Translated by COL. GEORGE RUHLEN, U. S. A.

The Journalle Militaire Suisse

ON THE Use and Application of Artillery. An unnamed writer in the November, 1929, issue of this journal submits an interesting discussion of this subject in course of which he calls attention to the prominent position gained and still held by the artillery with a tendency toward increasing influence as an element of warfare, a position that was forced upon it rather than incidentally assumed during the World War. The author states that in the war of 1870-71 the percentage of men wounded by artillery projectiles was approximately twenty-five as compared with the seventy per cent of the infantry. In the World War the percentage of casualties during the first month's campaign covering practically the war of movement, wounds caused by artillery were seventy-five per cent compared with twenty-three per cent due to the infantry. Of the six hundred thousand casualties in the German Army during the first four months of the war five hundred thousand were caused by artillery fire while of four hundred thousand casualties in the French Army during this period three hundred thousand were accounted for by the artillery.

The writer takes up the question of munition supplies for the artillery and shows how grievously the powers engaged in the war on both sides underestimated the quantities that were required not only of projectiles and explosives but also of guns of all kinds and calibers. He believes that want of an adequate supply of artillery munitions was a factor that contributed materially to the failure of the Germans in pushing forward their advance on the Marne at the beginning of the war. The experiences in this field of all the nations engaged in the war should be a lesson and warning to them in their preparation for wars of the future. He also holds that the matter of foreseeing and providing adequate means and methods of transportation facilities and appliances for handling supplies and replacements of artillery munitions from home manufacturing establishments fully up to the front lines in action is of equal if not greater importance than its manufacture in the first place and should receive adequate attention as an element of preparation for war. He argues that experiences of the World War indicate that in future the infantry will make more and more demands upon artillery involving expenditure of ammunition in its support in action and that to these demands will now be added those incident to the introduction, as a new feature, of tanks, armored motor wagons, aircraft and the like. He also holds that it will be advisable to give greater importance and attention in tactical courses of instruction and exercise to matters pertaining to and affecting supply and use of artillery ammunition and artillery fire in action. Artillery service regulations of all nations are

replete with the most rigid injunctions urging its economical use, especially in peace maneuvers and exercises, but when in action in war an artillery commander is encompassed with hostile machine gun fire and sees wounded and bleeding infantrymen about him he will be very apt to forget regulations and yield to the infantryman's entreaties for more and more artillery fire even though he is convinced, from the purely artillery standpoint, that the practical result of increased fire is only adding to the noise. All such contingencies must, however, be foreseen and provided for by those charged with providing the supplies required to meet them in spite of the best studied rules, statistical tables and budget restrictions.

One urgent need, the author contends, of every proposition for husbanding artillery munitions is a thorough understanding of the troop commander and the artillery commander of their respective functions and the limitations imposed on each by any situation that can arise. Observation and experience indicated that the armies of the World War were inadequately trained in this direction.

A Training Question. It appears that a number of accidents in which men lost their lives (in swimming exercises) and in other ways suffered personal injuries as incidents of military drills and trainings in physical exercises occurred recently and were the occasion of severe criticism in the civilian press in Switzerland. Lieut. O. F. Wyss of the Swiss military organization takes up this question in an article published in the March 15, 1930, issue of this journal and discusses it from the standpoint: whether or not a military superior is justified in requiring men under his command to engage, when on military duty, in training exercises that may result in accidents causing injury. The subject is far-reaching and is well handled by the writer but space permits quoting here only a few of the striking points of his treatment of it. Excluding instances in which the officer in command has failed to exercise every possible precaution to prevent accidents the author's answer to the question proposed by him is to be answered in the affirmative in most cases.

Exercises of the nature that gave rise to the matter at issue and others incident to training work in mountain regions are all liable to accidents in so many directions that the question stated might be regarded as superfluous but it is not as soon as we keep in view a clearly expressed training purpose: training for courage.

It has always been asserted that courage is a soldierly qualification that stands next to the highest soldierly attribute, performance of duty. Courage is the aggressive will to overcome danger. He has courage who knows fear. Courage anticipates fear and masters it. A pertinent illustration is the anecdote of the conversation of the two sentinels on night guard duty one of whom accused the other of cowardice to which the one accused replied: "If you had been as much afraid as I was you would have skipped out long ago." Every order that arouses or stimulates this will

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to overcome possible danger incident to its execution must have back of it recognition of a possibility of the danger. The greater the degree of fear the order induces in the man the better is it adapted to train his courage. It is important that the officer directing the exercises use judgment in requiring exercises that may involve danger by beginning with those that cause apprehension but are not really dangerous. Those involving possible danger to life and limb (which are always the subject of civilian criticism) may follow if they are necessary for the end to be accomplished. It is self-evident that the feeling of responsibility of the commander for the health and lives of his subordinates always has its weight when he gives such orders and raises with him the question whether or not the purpose to be attained is of sufficient value to justify the risk. If we have faith in the possibility of stimulating the forces of courage in the man by the training we cannot evade the consequences of subjecting him to the possible danger.

It is not possible to create in peace exercise training situations similar to those in war but notwithstanding that the fact that the man has, in his peace trainings been obliged frequently to overcome his fears of injuries contributes to a strengthening of his psychic. I have in mind in this an analogous training in the domain of the performance of duty when we must consider the training as having succeeded only when the consciousness of duty done is a reflection of obedience to every command, solution of every problem and function in every situation. The injection of a feeling of duty done is a guarantee that will assert itself in war. A similar mechanism should be recognized in training for courage in its successive stages: danger, fear, overcome.

Belief in these training possibilities requires that they be made real. Attacks from civilian mentalities will not be wanting. Even if we are obliged to recognize the impossibility of making a courageous soldier of the ordinary soldier the test of courage is at any rate in place in the selection of noncommissioned officers and in aspirants for commissions. If we concede the impossibility of training in every soldier the capacity to overcome fear we must still have faith in the existence of more or less courageous men and from those we must make our selections and this assurance can be secured only by tests. Meeting the test for courage is not the only characteristic sought for but is essential for those who are to be leaders of others.

The author concludes his contribution with: We affirm the necessity of the training of courage and in accordance we carry it on and insist on it together with its possible consequences, stand by the incidental dangers and do not permit civilian mentality to swerve us one iota from this idea of soldierly conviction.

Sayings of the First Napoleon. Capt. Karl Bruner of the Swiss General Staff has compiled a number of the sayings of Napoleon which are pub-

lished in this issue of the journal in the original French. Some of them are here quoted:

Only simple and accurate ideas are needed for war.

In war, as in politics, the moment lost never returns.

It is not troops that you need, it is the manner of combining and engaging them with vigor. In war celerity is the half of success.

One can accuse me of temerity but never of tardiness.

The direction of military affairs is only half the work of the general. To establish and secure his communications is one of the objects of greater importance. Secure well and speed your communications.

In war one sees his own misfortunes but does not see those of the enemy.

In war only the chief comprehends the importance of certain things and he alone can, by his superior will and information, confront and anticipate all difficulties.

He who does not overlook a field of battle with a clear sharp look slays many uselessly.

A general in chief command ought never give himself nor the vanquisher nor the vanquished rest.

The presence of the general is indispensable; he is the head, he is the whole army. It was not the Roman army that subdued Gaul, but Caesar. It was not the Carthaginian army that made the republican army of Rome tremble, it was Hannibal.

Nothing is more important in war than unity of command. Also, when one makes war against a single nation one must have only a single army, a single line of action conducted by a single chief.

One bad general is better than *two* good ones.

The gesture only of a loved general is worth more than the finest harangue.

My army has been less in numbers on the field of battle than were opposed to it but the enemy was taken in flagrante delictu while he maneuvered.

Woe to the general who comes onto the field of battle with a system.

COAST ARTILLERY ACTIVITIES

Office of Chief of Coast Artillery

Chief of Coast Artillery

MAJ. GEN. JOHN W. GULICK

Executive

COL. H. L. STEELE

Organization and Training Section

MAJ. J. B. CRAWFORD

MAJ. S. S. GIFFIN

CAPT. J. H. WILSON

Personnel Section

LT. COL. H. T. BURGIN

CAPT. H. N. HERRICK

Plans, Finance, and Materiel Section

MAJ. J. H. COCHRAN

MAJ. C. H. TENNEY

CAPT. F. J. MCSHERRY

Harbor Defenses on Caretaking Status

In recent numbers of the JOURNAL mention has been made of the importance of the work of officers on caretaking duties. It is probable that many officers (especially those who have never had this duty) have looked upon this detail as one of ease and leisure. If such an impression exists it is well to eliminate this thought because the Chief of Coast Artillery considers it one of the greatest responsibility. Careful consideration will be given to the selection of officers for this detail in order that those of the proper qualifications only may be detailed. Although the duties are voluminous and various it offers the opportunity for junior officers to enjoy many of the prerogatives of the commanding officer of a much larger command.

In undertaking this duty it should be remembered that while appearance has some effect it is not the most important consideration in the upkeep of valuable equipment and armament. "Is it in condition for service?" will be the question asked and determined by the various inspectors who will visit these posts from time to time. Brilliantly shined brass will not be sufficient if the base ring is out of level. Well-painted sights are of no use if the lenses are clouded. Rust may eat underneath a mirror-like coating of paint.

The difficulties of determining the exact condition for service of unmanned armament are many. Like any piece of apparatus its condition can be exactly determined only by its operation. It has been noted that the condition of power plants are uniformly excellent. Not only is the

brass shined, the paint perfect, but the sets, when operated, show the effects of perfect care and a pride in their condition by the personnel caring for them. The reason for their perfect condition may be somewhat due to a peculiar psychology applicable to the care of any power plant but it is due in great part to the fact that the plant can be actually operated at any time the caretaker pleases.

In this respect the armament proper differs from the power plant. However, its true condition is determined in the same way. The test of a gun is in its firing, the test of position finding equipment is in its use in tracking a target. An inspector really sees only certain surface indications which may indicate the probable condition of the mechanism but do not exactly determine it. How can these guns be fired?

The ammunition allowance of regular units is not sufficient to fire all Coast Artillery batteries. However, there is the training given to other components of the Army which include certain ammunition allowances which might be utilized in firing batteries out of service and in no way detracting from the value of the training given the National Guard and Organized Reserve. In the case of the National Guard considerable advantage would be derived from practices fired at these batteries.

It is contemplated manning harbor defenses out of commission, in time of emergency, by units of the National Guard. It seems logical, therefore, that these units be given training in peace time on the armament which they will man when called into federal service. In this way they will acquire familiarity with the guns and position finding equipment and will be better fitted to quickly man the armament. In addition they will acquire a personal interest in the batteries and will come to look upon them as their own.

This arrangement should appeal to the more senior officers who could be given an opportunity to exercise the command to which their rank entitles them. Their responsibility would be greater but responsibility has never been shirked by the National Guard and it carries with it a more complete control over their training. In this way armament out of commission could be kept constantly in condition for service beyond the shadow of a doubt.

Caretaking conditions throughout all parts of the United States differ greatly. A detachment in Portland Harbor may be hard pressed to keep its armament in satisfactory condition while a detachment of the same size in Charleston may care for the same amount of armament with ease. Climatic conditions alone greatly affect the local situation. Various other conditions enter such as transportation facilities, mess facilities, and the varying requirements of local administration. It is probable that a survey made, with all conditions considered, might result in a slight variation in the strengths of caretaking detachments as constituted at present. Experience will determine the need for such changes as seem necessary.

Coast Artilleryman Receives Life Saving Medal

The JOURNAL takes pleasure in announcing the award of the Treasury Department Life Saving Medal of Honor to Private 1Cl. Bob E. Wright, ASN 6755881, for saving the life of his comrade, Private Douglas A. Binns, on August 4, 1927, when both were members of the detachment, U. S. Army Mine Planter, *Gen. Wm. M. Graham*.

On this date the Mine Planter *Graham* was lying at the Lighthouse Dock, in Gatun Lake, C. Z. At about 6 p. m. Privates Wright and Binns were swimming in the lake near a float anchored close by when Binns was seized with cramps and called for help. His call was answered immediately by Private Wright who swam to him and assisted him towards the float. When nearing the float Wright became so exhausted that he himself called to a fatigue party for help. He continued to support Private Binns until additional help arrived but swam alone to the float when he had been relieved of his burden, although so exhausted that he could not climb on the float when he reached it.

After exhaustive investigation the Treasury Department recently (May 28, 1930) presented the silver Life Saving Medal to Private Wright for "bravely aiding in rescuing a comrade from drowning." Private Wright's then Commanding Officer, Col. A. Greig, Jr., in an official communication promptly commended him at the time and stated "your prompt action in thus assisting a comrade in distress is considered worthy of the high traditions of the service."

Private Wright is now assigned to the Eighth Airship Company, Scott Field, Belleville, Illinois.

Long Range Firing Tests in Panama

Captains John H. Wilson and Hugh N. Herrick of the office of the Chief of Coast Artillery returned from Panama on June 2 where they witnessed the long range firing tests of the 16-inch guns during the month of May. It is believed that an article will be obtained for publication in the JOURNAL giving the results of this test more in detail. The following extracts from Captain Wilson's report are believed to be of interest.

Perhaps it would be more accurate to call this firing a test of an aerial position finding system at extremely long ranges such as can be attained by the 16-inch guns.

The accuracy of the gun appeared rather phenomenal to Captain Wilson. It was fired at a range of approximately forty thousand yards. The probable error developed from eight velocity shots was about forty-five yards.

"In firing at a target which is not visible from terrestrial stations, it is necessary for the observer in the plane to give the location, course, and speed of the target before fire can be opened. In this firing the observer reported the location of the target in terms of coordinates; these he obtained by noting the location of the target with reference to known points of land.

"The plotter received from the plane, the position of the target by coordinates, course, speed, and time of observation. He corrected the initial range and azimuth for wind, muzzle velocity, drift, etc., and plotted the corrected position on a Cloke board. He then estimated a set forward point and sent the range and azimuth of this to the guns and to the safety officer who was located in a separate plotting room. The safety officer kept a plot of the course of the tug, and a series of set forward points which would be used if firing were apt to hit the tug. When a range and azimuth to be used for firing came from the plotting room, the safety officer plotted it on his board. If the data was such that the shot would fall a safe distance behind the set forward point for the tug, he repeated the range and azimuth to the gun and added "prediction safe." He then pressed a firing bell just before the T. I. minute bell. Ballistic wind was obtained by means of antiaircraft bursts up to twenty-five thousand feet. A plane was used to obtain temperature readings.

"The data furnished by the aerial observer (location, course, and speed of the target) need be furnished only once, unless the target changes course, in which case the new course should be given. Of the three elements to be furnished, accuracy in the course is by far the most important. The pilot of the plane should be able to fly near enough parallel to the course to enable the compass bearing to be fairly accurate. Errors in the speed and the location of the target will be detected by the plotter and corrected for after the first few shots; the location of the target need only be accurate enough for the observer to be sure of seeing the first splash.

"In clear weather, the observer would undoubtedly be able to observe the relation of the target to some landmarks in any locality in which long range guns are likely to be fired. In weather of poor visibility the observer should, by dead reckoning from a known point, be able to give the coordinates of the target with sufficient accuracy for the splash of the first shot to fall within his range of vision.

"The clock system was used in reporting deviations and this system worked very satisfactorily. The cooperation of the Air Corps would leave nothing to be desired, and the observers' reports were remarkably prompt and accurate. Two-way radio from plotting room to plane worked perfectly.

"With a trained observer, there is no question but that adjustment can be obtained by the method used. In the last day's firing, consisting of twenty-one shots on two separate courses, three of the shots at least will probably plot as hits, one of them being so close that the water from the splash damaged the target. In spite of this showing, we do not believe it would be reasonable to expect an adjustment in less than fifteen shots."

Coast Artillery Reserves of the Second Coast Artillery District

The Coast Artillery Reserve of New York is one of the most active groups in the United States. Each year an annual dinner is held on the anniversary of the founding of the organization. The tenth anniversary was celebrated on May 19 at the dinner held at the Hotel McAlpin, New York. These dinners are always gala occasions. The guests of honor are well known either in military or civilian circles.

At the last dinner Brig. Gen. Howard S. Borden, commanding the

212th AA Brigade, presided as toastmaster. The principal speaker was Maj. Gen. John W. Gulick, Chief of Coast Artillery. Other well known guests were Maj. Gen. Robert Lee Bullard, Ret.; Brig. Gen. Henry J. Hatch, commanding the Second C. A. Dist.; Brig. Gen. John J. Byrne, N. G. N. Y., Capt. Taylor, U. S. N., and Rev. William Duane, President of Fordham University. Speeches were also made by General Hatch and Col. F. W. Stopford, C. A. C., Executive Officer for Organized Reserves in the 2nd C. A. District. General Bullard was persuaded to relate some of his inimitable anecdotes. Messages of greeting from former unit commanders were read and enjoyed. Special War Department motion pictures were shown illustrating recent developments in light and heavy artillery materiel and methods.

The lighter features of the evening entertainment were supplied by an orchestra, the field music of the 16th Infantry, vocal selections by Mlle. Charlotte Harriman, the famous contralto, a group of singers from the Mendelssohn Glee Club, and a well-known radio team.

The interest of this group is indicated by the fact that one hundred and seventy Reservists attended the dinner. With such interest there is no question as to the progress and future success of the Reserve in New York.

Shortage of Coast Artillery Reserve Officers

Under the quota established by the procurement plans of the War Department the Coast Artillery is at present short seven thousand Reserve officers. This shortage has been the subject of considerable study and several measures have been proposed for its correction.

One phase of the question believed to be worthy of consideration in reducing the shortage is the constant loss through failure of Reserve officers to maintain their good standing and their subsequent failure to secure re-appointment on the active list at the end of their five-year period of appointment. This is a problem for the Reserve units and the Regular Army unit instructors to solve.

While retention of Reserve officers would go far towards solving the problem, it would still leave a shortage and efforts along this line would require a considerable period in which to make a showing. Other methods proposed are in connection with R. O. T. C. units, the principal source of procurement.

It is believed the following are worthy of consideration:

To install new units.

To produce the maximum number of R. O. T. C. graduates from the units now established.

To discontinue some units not profitable in production.

Economy prevents the adoption of the first method to a large extent. The latter two will probably be most practicable. Every effort will be

made to increase the number of graduates in each unit not producing the maximum allowed under Corps Area allotments.

It is probable that a few units may be abandoned by the Coast Artillery where the results are not considered satisfactory. In this case colleges and universities who have been requesting the establishment of Coast Artillery R. O. T. C. units will be given consideration in establishing new units from funds and equipment becoming available from the units discontinued.

Organized Reserve Camps, 1930

The following list shows reserve regiments attending active duty training during the summer of 1930. The list of instructors is incomplete and probably subject to some last minute corrections.

<i>Unit</i>	<i>Instructors</i>	<i>Location of Camp</i>	<i>Period</i>
614 C. A. C. (HD)	Lt. Col. J. L. Holcombe	Ft. H. G. Wright, N. Y.	July 6-19
615 C. A. C. (HD)	Maj. E. O. Halbert		
902 C. A. (AA)	Col. S. G. Shartle		
906 C. A. (AA)			
542 C. A. (AA)			
602 C. A. (Ry)	Lt. Col. J. F. Walker	Ft. Hancock, N. J.	July 6-19
607 C. A. (TR)	Maj. C. M. S. Skene		Jul. 31-Aug. 13
514 C. A. (AA)		Aberdeen Proving Ground, Md.	July 6-19
522 C. A. (AA)			
530 C. A. (AA)			
533 C. A. (AA)			
539 C. A. (AA)			
*516 C. A. (AA)	Col. L. R. Burgess	Fort Monroe, Va.	July 6-19
*622 C. A. (HD)	Maj. H. W. T. Eglin		July 19-Aug. 1
523 C. A. (AA)	Maj. W. C. Knight		Aug. 3-16
603 C. A. (Ry)	Maj. E. E. Bennett		Aug. 3-16
916 C. A. (AA)			Aug. 16-30
921 C. A. (AA)	Maj. R. K. Greene	Ft. Barrancas, Fla.	July 13-26
923 C. A. (AA)	Maj. E. H. Freeland		July 13-26
925 C. A. (AA)			July 13-26
540 C. A. (AA)			July 27-Aug. 9
922 C. A. (AA)			July 27-Aug. 9
*545 C. A. (AA)	Maj. R. N. Perley	Camp Beauregard, La.	July 1-14
945 C. A. (AA)	Lt. Col. J. R. Musgrave	Camp Knox, Ky.	July 27-Aug. 9
946 C. A. (AA)	Maj. W. G. Patterson		
947 C. A. (AA)	Col. A. D. Raymond		
948 C. A. (AA)	Maj. C. J. Herzer		
949 C. A. (AA)	Maj. F. P. Hardaway		
950 C. A. (AA)			
507 C. A. (AA)	Capt. T. R. Phillips	Camp Knox, Ky.	July 13-26
955 C. A. (AA)	Maj. H. L. King		
958 C. A. (AA)	Capt. John R. Clark		
960 C. A. (AA)			
626 C. A. (HD)	Col. F. S. Long	Fort MacArthur, Cal.	July 1-14
605 C. A. (HD)	Lt. Col. J. L. Long		July 9-22
608 C. A. (TD)	Lt. Col. W. G. Peace		July 18-31
977 C. A. (AA)	Maj. E. P. Noyes		Aug. 3-16
517 C. A. (AA)			Aug. 3-16
63 C. A. (AA)			Aug. 3-16
57 C. A. (TD)	Maj. R. H. Fenner	Ft. Winfield Scott, Cal.	Aug. 17-30
509 C. A. (AA)	Col. P. M. Kessler	Ft. Worden, Wash.	July 6-19
			Aug. 10-23

* Unit in charge of C. M. T. C. instruction.

List of National Guard Camps for Field Training, 1930

<i>Unit</i>	<i>Commanding</i>	<i>Instructor</i>	<i>Location of camp</i>	<i>Period</i>
240 C. A. (HD), Me. N. G.	Col. G. E. Fogg	Lt. Col. J. S. Dusenbury	Ft. Williams, Me.	July 5-19
245 C. A. (HD), N. Y. N. G.	Col. B. H. Pendry	1st Lt. S. E. Willard		June 22-July 6
243 C. A. (HD), R. I. N. G.	Col. C. L. D. Wells	Maj. L. B. Weeks	Ft. H. G. Wright, N. Y.	July 19-Aug. 2
241 C. A. (HD), Mass. N. G.	Col. G. M. King	Maj. O. C. Warner		Aug. 2-16
242 C. A. (HD), Conn. N. G.	Lt. Col. Philip Hurley	Maj. A. E. Rowland	Ft. H. G. Wright, N. Y.	Aug. 17-31
211 C. A. (AA), Mass. N. G.	Lt. Col. H. Z. Landon	1st Lt. A. D. Amoroso	Sandwich, Mass.	July 19-Aug. 2
197 C. A. (AA), N. H. N. G.	Col. C. E. Rexford	1st Lt. P. W. George		July 5-19
212 C. A. (AA), N. Y. N. G.	Col. Wm. Ottmann	Capt. V. P. Foster	Rye Beach, N. H.	June 29-July 13
244 C. A. (156), N. Y. N. G.	Col. L. M. Thierry	1st Lt. J. S. Robison	Ft. Ontario, N. Y.	July 13-27
Bat. A, 261 C. A., Del. N. G.	Capt. W. L. Torbert, Jr.	Maj. John B. Martin	Ft. Ontario, N. Y.	July 5-19
198 C. A. (AA), Del. N. G.	Col. J. P. LeFevre	Maj. Allen Kimberly	Ft. Hancock, N. J.	Aug. 2-16
213 C. A. (AA), Pa. N. G.	Col. C. J. Smith	Maj. J. F. Kahle	Bethany Beach, Del.	Aug. 16-30
260 C. A. (AA), D. C. N. G.	Maj. W. W. Burns	1st Lt. J. H. Featherston	Bethany Beach, Del.	July 26-Aug. 9
246 C. A. (HD), Va. N. G.	Col. F. B. Varney	Maj. O. G. Pitz	Ft. Monroe, Va.	Aug. 3-17
264 C. A. (HD), Ga. N. G.	Maj. Leroy Cowart	Maj. C. B. Meyer		July 6-20
206 C. A. (AA), Ark. N. G.	Col. E. C. Robertson	Maj. F. C. Scofield	Ft. Barrancas, Fla.	July 13-27
265 C. A. (HD), Fla. N. G.	Maj. M. R. Woodward	Maj. M. M. Kimmel	Ft. Barrancas, Fla.	Aug. 10-24
252 C. A. (155), N. C. N. G.	Lt. Col. R. S. McClelland	Maj. J. deB. Walbach	Ft. Moultrie, S. C.	July 13-27
263 C. A. (HD), S. C. N. G.	Maj. C. C. Smith	Capt. G. A. Patrick	Ft. Moultrie, S. C.	July 13-27
202 C. A. (AA), Ill. N. G.	Col. C. J. Kraft	Capt. A. P. Bruner	Camp Grant, Ill.	Aug. 2-16
203 C. A. (AA), Mo. N. G.	Col. T. H. Loy	Maj. J. L. Homer	Camp Clark, Mo.	July 20-Aug. 3
248 C. A. (HD), Wash. N. G.	Maj. E. C. Dohm	1st Lt. C. O. Bell		June 7-21
250 C. A. (HD), Calif. N. G.	Col. R. E. Mittelsteadt	Capt. J. C. Stephens	Ft. Worden, Wash.	July 12-26
251 C. A. (AA), Calif. N. G.	Lt. Col. H. H. Morehead	1st Lt. L. E. Gray	} Camp McQuaide, Calif.	Aug. 2-16
249 C. A. (HD), Ore. N. G.	Lt. Col. D. Ferguson, Jr.	Col. C. G. Bunker		June 11-25
		Maj. C. S. Doney		
		Maj. J. D. MacMullen		
		Maj. G. Ruhlen, Jr.		
		Maj. C. A. W. Dawson		

Officer Assigned to Massachusetts Institute of Technology as Student

First Lieutenant W. I. Allen will not resign from the Army within the next three years. This was determined from the certificate signed by him when he was selected to attend M. I. T. as a student during the period July 1, 1930-June 15, 1930.

Each year a Coast Artillery officer is selected to attend the course in Electrical Communication and Automotive Engineering at this well-known institution of technical education. Lieutenant Allen began the summer course in July. This ends about October 1 when he will enter the regular course in which he will remain until next June.

The course is a very thorough one and of immense personal value to the officer taking it—so much so that the War Department requires a certificate from the student officer that he will not resign for a period of three years after its completion.

Coast Artillery Officer Detailed with French Antiaircraft Regiment

Major Eugene Villaret designated as a student at the Ecole de Guerre, Paris, will be attached to the 403rd Antiaircraft Regiment (French) for the period July 20-August 30, through the courtesy of the French Government. This, of course, is in addition to the duty as a student at the Ecole de Guerre.

In this connection it may be of interest to inform readers further concerning the proposed detail of Coast Artillery officers at French and British antiaircraft schools. The British Government withheld approval so this detail is definitely "out." French approval will probably be obtained but no officer will be detailed to their school until certain details are worked out. In the meantime the student detailed at the Ecole de Guerre will receive instruction in French antiaircraft artillery by attachment to a French regiment. The British are not inclined to look with favor upon the detail of foreign officers to their service schools nor do they seek to enter their officers in foreign service schools.

The Coast Artillery School

Horses — Horses — Horses

Damned and blessed, cursed and petted, loved and detested, contemplated and feared, with stirrups and without, in the saddle and on the ground, when two or three are gathered together the odds are three to one that the topic of conversation is horses. The Coast Artillery School has gone "loco" over horses. Lest there be some misunderstanding regarding this madness let it be said that it never exists in the fall of the year. In October of each year, seventy-four of the seventy-five student officers curse the shades of the inventor of horses. (\$) æ œ & () \$? , denoting the elapse of four months of "fours right by fours," "heels down," "cross stirrups over pommel of saddle, slow trot—Ho-o!") Spring has come. What strange

change has taken place? The erstwhile social lion who has not done a "Prince of Wales" or two, who thinks hippology is related to feminine charms and the Italian seat is some sort of antique furniture, becomes a tongue-tied wall flower. This subversive influence which is attempting (and succeeding) in making the Coast Artillery Corps horse-conscious is no less than Maj. Howell M. Estes, Cavalry, instructor in the Department of Tactics, C. A. S. The success of his course in "the appreciation of the horse" is indicated in the fact that frequently on week ends this time of the year the sixty riding horses available are not sufficient to supply the demand for privilege riding and polo. The annual Fort Monroe Horse Show is a gala affair and reflects the credit due Major Estes for popularizing the horse.

On May 20 Maj. S. S. Winslow and Maj. R. T. Pendleton, both of the faculty of the Coast Artillery School, from the foretop of the U. S. S. *Saratoga*, witnessed the maneuvers and review of the combined United States Fleets before President Hoover. On his way to and from the maneuvers President Hoover passed through Fort Monroe where he was greeted with acclaim by the residents.—S. R. M.

EXTRACTS FROM THE REPORT OF MAJ. S. S. WINSLOW*

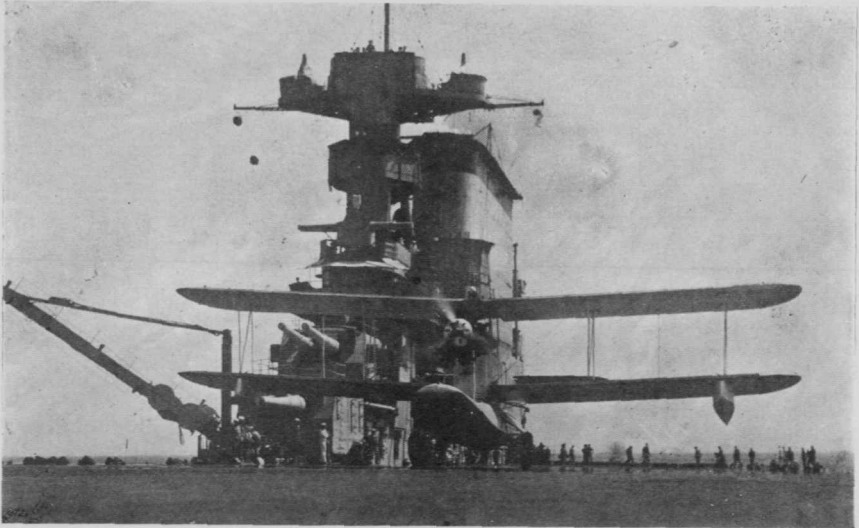
"I was put aboard the *Saratoga* in Lynnhaven Roads on the night of May 19. When I went on deck next morning I found the ship had joined the fleet, ahead in three columns, with a few cruisers and destroyers still further ahead. The *Lexington* was just astern of us. Each airplane carrier was accompanied by two destroyers which stood by for possible rescue work. We never got close to the battleships, and saw very little of the passing in review of the fleet.

"The morning was spent in a tour of inspection of the ship, which was covered from keel to foretop. The carriers have sixteen boilers, each completely shut off from the others by water-tight bulkheads. Boilers operate under pressure to give forced draft and are entered through air locks. Each boiler has several oil-burning furnaces which can be cut in or out at will, for cleaning, or according to the needs for steam. Boilers work at a pressure of two hundred and eighty pounds.

"The ship uses A. C. power for main engines and D. C. for lighting and auxiliaries. Power arrangements are different from what is popularly believed. The ship has four main turbines directly connected to the alternators. These are placed in two completely separated compartments. She has four propellor shafts, each shaft having two induction motors mounted thereon. Either or both of these motors may be excited. If one is not needed, it runs idle on the shaft. Speed variation is accomplished by varying the speed of the turbines. This varies the voltage and also the frequency, which operates to vary the speed and power of the induction motors. Voltages run up to five thousand volts at full power. The ship is remarkably free from vibration, even when running at full power. At times she made over thirty knots, yet there was no difficulty in using an eight-power field glass from the tops.

* NOTE. Many interesting details were deleted from Major Winslow's report at the request of the Navy Department.

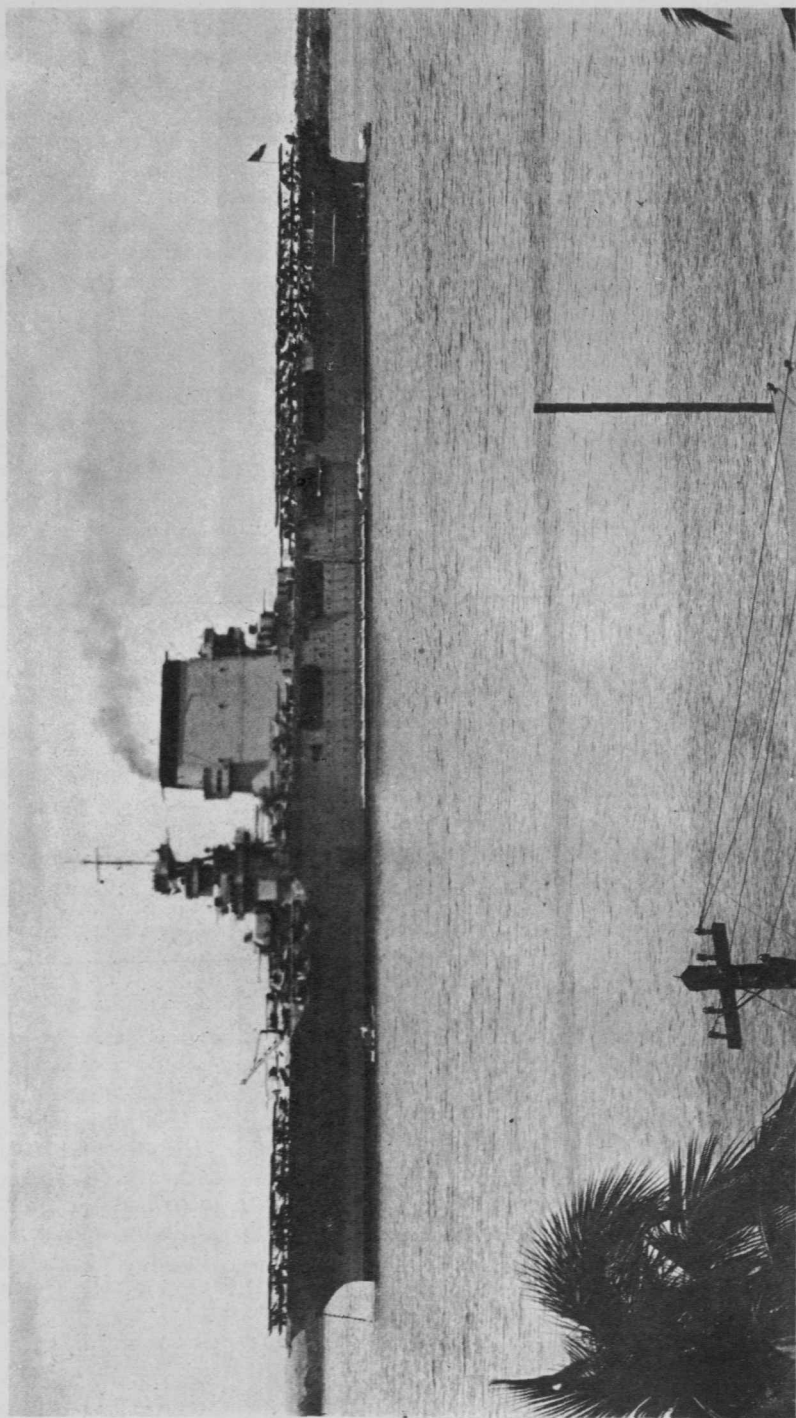
"That part of the review which I observed related mostly to the Air Service. The ship had some seventy-five planes secured on deck—scouts, fighters, torpedo planes, and bombers. At about 12:15 p. m., all the engines were started, and after a very brief warming up period, they began to take the air. The ship steamed dead into the wind at probably about twenty-five knots. All planes which took off were land planes except one or two amphibians. Everything worked like clockwork. There were no delays or mishaps. While the planes were up, two or three, including one from the *Lexington*, made forced landings. This simply means that they returned ahead of schedule on account of threatened motor trouble. To take these planes aboard, the carrier had to swing around into the wind and build up a speed of about twenty-five knots.



LOENING AMPHIBIAN PLANE TAKING OFF FLIGHT DECK OF LEXINGTON

"The smoke screen laid by the planes was very impressive. The wind was light and conditions generally good for smoke screens. Some six planes took part in the work, and within a minute or two had put down a screen that lasted for more than a half hour. Moving ships could steam out of it, but the planes can lay them faster than battleships can steam. It is apparent that any fleet which does not care to fight can easily avoid action for a considerable time. Some officers claim that by the use of airplane spotting, batteries or ships can attack other ships which are entirely out of sight. They may be able to attack them, but with ships making twenty-five knots, or better, the percentage of hits will be exceedingly small. It is said that at the battle of Jutland, the cruiser *Southampton* successfully dodged salvos for a considerable period while in full view of the German Navy. Hits on an unseen vessel, free to move at twenty knots or better, will be few and far between. I believe the Coast Artillery should give some serious thought and try to develop methods of combating the smoke screen. This type of smoke screen might have allowed a British victory at the Dardanelles.

"We saw the plane attached to the *Los Angeles*, but at a great distance.



LEXINGTON AT GUANTANAMO BAY, CUBA

Naval officers said that the practical use of this was the carrying of fighting planes to protect the dirigible from enemy airplane attack.

"The return of the planes to the *Saratoga* was accomplished very smoothly. The ship steamed into the wind at a speed of over twenty-five knots. The return of the planes to the deck of the carrier is the most ticklish and interesting part of the operation. It calls for real training and team work not only on the part of the deck crews but also from the planes in the air.

"While the planes were put off and taken on with surprising skill, I gathered the idea that the handling of the carriers themselves was still somewhat in the experimental stage. They are exceedingly vulnerable. A few well-placed bombs would ruin the deck for landing or take-off purpose, not to mention other damage to the carrier. To put off or take on the planes the carrier must steam into the wind at approximately full speed. This might well take them in the opposite direction from what the main fleet wishes to travel, and even directly toward the enemy fleet. If the fleet was traveling in the opposite direction at twenty knots, the carrier might be some fifty miles or more away at the end, and well out of touch with the main fleet. While our naval officers feel that they are more skillful than foreign navies in the handling of the carriers, it is believed that there are still many details to be worked out before they will be absolutely sure of the best methods of operation.

"Several pictures which I took from the foretop are attached.

"After the demonstration was completed, the observing parties were transferred to the destroyer *Barry*, which made a fast run in, to make connection with the Washington boat. The *Barry* made thirty knots until she got in shoal water, inside the capes."

GRADUATING EXERCISES

On June 18 the Chief of Staff, Gen. Charles P. Summerall, made the principal address and presented diplomas at the graduation exercises of the Coast Artillery School. Addresses were also made by Maj. Gen. John W. Gulick, Chief of Coast Artillery, and by Maj. Gen. H. D. Todd, Jr., Commandant of the School.

The program for the day included an inspection of the West Point Cadet Camp, the R. O. T. C. Camp and a review of the 12th, 51st and 52nd Coast Artillery Regiments.

This year's graduates and their assignments to stations are as follows:

Advanced Course

Majors

Anderson, Glenn P. Assigned to 13th Coast Artillery, Fort Crockett, Texas.

Chapin, Willis McD. Assigned to Panama.

Cole, Donald M. Assigned to Philippine Islands.

Flanigen, Barrington L. Assigned to Air Corps Tactical School, Langley Field, Virginia.

- Gallagher, Ferdinand F. Assigned to 1st Coast Artillery District, Boston, Massachusetts.
- Hanna, William C. Assigned to 14th Coast Artillery, Fort Worden, Washington.
- Lenzner, Delmar S. Assigned to 51st Coast Artillery, Fort Monroe, Virginia.
- McCatty, Kenneth. Assigned to Panama.
- MacMullen, James D. Assigned to California National Guard, San Francisco, California.
- Martin, John B. Assigned to New Hampshire National Guard, Concord, New Hampshire.
- Melberg, Reinold. Assigned to 14th Coast Artillery, Fort Worden, Washington.
- Ostrom, Charles D. Y. Assigned to 12th Coast Artillery, Fort Monroe, Virginia.
- Seeds, Edward C. Assigned to Panama.
- Vogel, Berthold. Assigned to Hawaii.

Captains

- Braly, William C. Assigned to 12th Coast Artillery, Fort Monroe, Virginia.
- Campbell, Alexander H. Assigned to R. O. T. C., University of California, Berkeley, California.
- Dingley, Nelson, 3rd. Assigned to Philippine Islands.
- Evans, William D. Assigned to Philippine Islands.
- Lowry, Porter P. Assigned to R. O. T. C., University of Cincinnati, Cincinnati, Ohio.
- Mackin, Robert N., Jr. Assigned to Panama.
- Taliaferro, Edward H., Jr. Assigned to R. O. T. C., University of Alabama, University, Alabama.
- Whybark, George W. Assigned to Philippine Islands.

Battery Officers' Course

Major

- Chipman, Albert D. Assigned to 13th Coast Artillery, Fort Barrancas, Florida.

Captains

- Adams, Carl R. Assigned to take Advanced Course, Coast Artillery School, Fort Monroe, Virginia.
- Armstrong, Clare H. Assigned to Philippine Islands.
- Barr, Elvin L. Assigned to Philippine Islands.
- Barrett, Roy T. Assigned to Hawaii.

- Bartlett, Thomas R. Assigned to Advanced Course, Coast Artillery School, Fort Monroe, Virginia.
- Bliss, Harold B. Assigned to Panama.
- Burke, William J. Assigned to R. O. T. C., University of Kansas, Lawrence, Kansas.
- Carlson, William R. Assigned to Hawaii.
- Conway, Eugene T. Assigned to Advanced Gunnery Course, Coast Artillery School, Fort Monroe, Virginia.
- Davis, Leonard L. Assigned to Advanced Gunnery Course, Coast Artillery School, Fort Monroe, Virginia.
- Fisken, Archibald D. Assigned to Hawaii.
- Gillette, Chauncey A. Assigned to 63rd Coast Artillery, Fort MacArthur, California.
- Hartman, Norman E. Assigned to Advanced Motor Transport Course, Coast Artillery School, Fort Monroe, Virginia.
- Hollingshead, Frank A. Assigned to Advanced Engineer Course, Coast Artillery School, Fort Monroe, Virginia.
- Lewis, Parry W. Assigned to Advanced Motor Transportation Course, Coast Artillery School, Fort Monroe, Virginia.
- Lowe, Percy S. Assigned to Hawaii.
- McCarthy, Edward B. Assigned to 9th Coast Artillery, Fort Banks, Massachusetts.
- Parsons, Marvel H. Assigned to United States Military Academy.
- Pendleton, Harry E. Assigned to Advanced Motor Transportation Course, Coast Artillery School, Fort Monroe, Virginia.
- Reynolds, Earl R. Assigned to 11th Coast Artillery, Fort H. G. Wright, New York.
- Richards, Frank. Assigned to 61st Coast Artillery, Fort Sheridan, Illinois.
- Rowntree, Kenneth. Assigned to Philippine Islands.
- Steward, Wilfred H. Assigned to 14th Coast Artillery, Fort Worden, Washington.
- Townsend, James R. Assigned to Advanced Course, Coast Artillery School, Fort Monroe, Virginia.

First Lieutenants

- Allen, William I. Assigned to Massachusetts Institute of Technology, Cambridge, Mass.
- Barber, Edward. Assigned to Advanced Engineer Course, Coast Artillery School, Fort Monroe, Virginia.
- Bates, Russell E. Assigned to R. O. T. C., Michigan Agricultural College, East Lansing, Michigan.
- Breitung, Howard E. C. Assigned to 6th Coast Artillery, Fort Winfield Scott, California.

- Burgess, George R. Assigned to Army Industrial College, Washington, D. C.
- Casey, Martin C. Assigned to Hawaii.
- Field, Girville L. Assigned to 11th Coast Artillery, Fort H. G. Wright, New York.
- Frank, Karl C. Assigned to 63rd Coast Artillery, Fort MacArthur, California.
- Gregory, Edgar M. Assigned to Hawaii.
- Herron, Donald B. Assigned to 69th Coast Artillery, Aberdeen Proving Ground, Maryland.
- Latimer, David B. Assigned to Advanced Engineer Course, Coast Artillery School, Fort Monroe, Virginia.
- Lawton, William S. Assigned to 61st Coast Artillery, Fort Sheridan, Illinois.
- McConnell, Frank C. Assigned to Hawaii.
- Martin, Darwin D. Assigned to 61st Coast Artillery, Fort Sheridan, Illinois.
- Moss, Joe D. Assigned to Advanced Motor Transportation Course, Coast Artillery School, Fort Monroe, Virginia.
- Nichols, George F. Assigned to 11th Coast Artillery, Fort H. G. Wright, New York.
- Pape, Robin B. Assigned to Advanced Gunnery Course, Coast Artillery School, Fort Monroe, Va.
- Pitzer, John H. Assigned to R. O. T. C., Utah Agricultural College, Logan, Utah.
- Schabacker, Clarence H. Assigned to Hawaii.
- Shepard, Lloyd. Assigned to 69th Coast Artillery, Aberdeen Proving Ground, Maryland.
- Smith, Perry McC. Assigned to United States Military Academy.
- Tredennick, Donald C. Assigned to 51st Coast Artillery, Fort Monroe, Virginia.
- Wallace, Everett C. Assigned to Advanced Engineer Course, Coast Artillery School, Fort Monroe, Va.
- West, Charles W. Assigned to Panama.
- Wilson, Auston M., Jr. Assigned to Philippine Islands.
- Wilson, Charles F. Assigned to Company Officers' Course, Signal Corps School, Fort Monmouth, New Jersey.

Second Lieutenants

- Alba, Bienvenido M. (P. S.). Assigned to Quartermaster Motor Transportation School, Camp Holabird, Maryland.
- Heinlein, Rex I., Jr., Engr. Corps. Assigned to Massachusetts Institute of Technology, Cambridge, Mass.

55th Coast Artillery (TrD), Fort Ruger

During the month of May target practice was held by the three batteries of the 2nd Battalion, 55th Coast Artillery (155 GPF), Maj. Rodney H. Smith, commanding. Three practices were fired by each—day preliminary, day record, and night record—at Fort Kamehameha. Each battery fired on a separate course of the tug. Four ranging shots and eight record salvos (of four shots each) were fired by each battery. The results follow:

<i>Battery</i>	<i>Commanding</i>	<i>Hits Broadside</i>	<i>Hits Bow-on</i>
<i>Preliminary—May 16</i>			
D	Capt. Oscar D. McNeely	3	5
E	Capt. LeRoy A. Whittaker	1	5
F	Capt. Philip F. Biehl	3	12
<i>Day Record—May 22</i>			
D	Capt. Oscar D. McNeely	3	6
E	Capt. LeRoy A. Whittaker	1	5
F	Capt. Philip F. Biehl	1	12
<i>Night Record—May 29</i>			
D	Capt. Oscar D. McNeely	7	2
E	Capt. LeRoy A. Whittaker	9	18
F	Capt. Philip F. Biehl	14	3

Spotting was by flank observation from Diamond Head although air observations were also available. Firing and observation was at fifteen-second intervals. The Battalion Commander is proud of the record and believes that the firing will stand well up towards the top among units of this type.

The 61st Coast Artillery (AA), Fort Sheridan, Ill.

At the time of submitting copy for the June number of the JOURNAL the 61st had just left Richmond. At this time (June 16) it has arrived in Fort Sheridan and completed the long march in excellent condition.

Although there was much hard work connected with the march both officers and men enjoyed the experience and feel that they have acquired much valuable knowledge in addition to a month's outing.

Due to a detour on the route between Lynchburg and Lexington one day was lost in the early part of the schedule. This day was later made up on the level stretches and good roads of Indiana. The schedule was sufficiently elastic to cover any time lost and arrive at the destination on the date set.

The scenic beauty of the Allegheny and Blue Ridge Mountains was much enjoyed by the personnel even though it added to the labors with the transportation. Not the least enjoyable part of the trip was the oppor-

tunity offered to visit places of interest. Officers and men visited the famous Natural Bridge of Virginia and were the guests of that famous military school of the south—the Virginia Military Institute. In return they gave the cadets a searchlight illumination by night—emplacing one of the anti-aircraft guns. Of particular interest in Kentucky were the famous horse-breeding estates and an inspection of the wonderful race horse, Man of War, in the flesh.



MAJ. GEN. HENRY D. TODD, JR., COL. GEORGE A. NUGENT, LIEUT. JAMES L. HARBAUGH, JR., REVIEWING THE 61ST COAST ARTILLERY ON ITS DEPARTURE FROM FORT MONROE, MAY 14, 1930

The hospitality of the citizens along the route was overwhelming. At many places the soldiers were given free admission to the amusement parks, baseball games and motion picture theaters. Sometimes special "spreads" (food) with free cigarettes were prepared and the hungry (?) artillerymen invited to the feast. Chambers of Commerce, American Legion posts, Reserve officers, National Guard units, special reception committees organized entertainment and reception features. In return the 61st dem-

onstrated, explained, and made welcome, in general, the numerous visitors who came into camp out of curiosity or interest in the guns that shoot into the air. Major Cunningham cannot say too much for the enthusiasm with which they were received and the courtesies accorded. It is a mistake to assume that the great majority of our citizenry has a submerged antagonism towards the Army and looks with suspicion upon things military. The citizens only need to be instructed and shown to win their confidence and support.

Much might be said of other details of the trip—the help given by the



THE 61ST COAST ARTILLERY GOING UP NORTH MOUNTAIN, BETWEEN LEXINGTON AND CLIFTON FORGE, VIRGINIA

State Police in all states, the demonstration given in Indianapolis with the National Guard Air Corps furnishing targets for searchlight illumination. All this is left to the author of the article which will be published soon setting forth the details of the trip, the difficulties met and overcome. The experience of this regiment in a march of such length should not be permitted to go unrecorded.

The 62nd and 69th Coast Artillery (AA), Aberdeen Proving Ground, Maryland

The first matter to cover is to administer a reprimand to the writer of the notes of the last number of the JOURNAL wherein it was stated that the

69th came down from Totten and was living under canvas at Aberdeen. This was an obvious error because the 69th has lived at Aberdeen from birth and it is not reasonable to suppose it would be living under canvas when it was first on the ground or (Ground). The writer of this account casting discredit upon the acquisitiveness of the infant prodigy has been scathingly rebuked.

The 62nd was extremely busy with its target practice during May and early June. It is now occupied with Reserve training and will leave Aberdeen towards the end of July when the 69th will take its place upon the firing range. In the meantime the 69th has been receiving some practical training in road marches and camping. Chestertown and Westminster were both visited (Chestertown located on the Chester River on the eastern shore of Maryland, thirty miles east of Baltimore by air; population, three thousand; crabs, spinach, tomatoes, etc.). A demonstration was given for the population which was much appreciated by the inhabitants. The mileage was about one hundred and seventy-five.

Fair weather prevailed on this trip but not on the trip to Westminster on June 17. This town is well known to all followers of the Gettysburg map and is located in the midst of a prosperous agricultural district. Road conditions here were not so favorable but furnished much experience. The rain ceased at 7:30 p. m. when the searchlights were put in action and attracted much attention. The mayor assisted in securing a camp site and park for the vehicles. On these trips the interest of the civilian population was very apparent.

A little later the 62nd will depart for Fort Totten and the 62nd will get down to the serious business of the annual antiaircraft firing tests.

The 240th Coast Artillery (HD), Me. N. G.

One of the outstanding regiments of the Coast Artillery is the 240th C. A. of the Maine National Guard. It has a peculiar organization which has been the subject of some comment and, occasionally, an inclination to change it. This peculiarity is obvious when it is stated that it consists (or will consist) of twelve firing batteries manning three distinct types of armament. The 1st Battalion is assigned to seacoast guns and at present consists of three batteries; the 2nd Battalion (four batteries) is an anti-aircraft battalion; the 3rd Battalion is assigned to 155 GPF guns, tractor drawn. This variety of weapons takes care of all possible targets. The regiment would be able to give a good account of itself in all situations.

The field training of the regiment will take place in the Harbor Defenses of Portland during the period July 5-19. Col. G. E. Fogg commands the regiment. Lieut. Col. J. S. Dusenbury and 1st Lieut. S. E. Willard are the Regular Army instructors.

PROFESSIONAL NOTES

Antiaircraft Materiel to Be Tested at Aberdeen

During the period August 15-October 15 the annual test firing of anti-aircraft materiel will be conducted at Aberdeen Proving Ground, Md. This year the unit conducting the firings will be the newly formed 69th Coast Artillery (AA), Lieut. Col. J. B. Taylor, Commanding. The test firings will complete an extremely busy season for the regiment which began about March 1 when it was organized.

The period of test firings is a very instructive one. For this reason effort will be made to secure the attendance of National Guard and Reserve Instructors throughout the states in order that they may be informed and familiar with the newest in anti-aircraft equipment. In addition it is hoped to send one Regular officer from each harbor defense regiment for an extended period. With the beginning of anti-aircraft training for all Coast Artillery troops (July 1) a good purpose will be served in sending one officer to Aberdeen for additional instruction. This officer will then be able to return to his permanent station with a more thorough knowledge of the essentials of anti-aircraft training and a perspective of anticipated developments.

A list of materiel to be tested at Aberdeen follows:

ORDNANCE

Gun Materiel

- 1—Director, T6 (Sperry).
- 1—Director, T5 (Papello).
- 1—Director, M1A1 (latest type Vickers) (for 3-inch AA gun M3).
- 1—Director T3 (Vickers), 105-mm. AA (modified for use with mechanical fuze, M2).
- 2—AA Data Transmission Systems, M2 (Sperry).
- 1—Self-synchronous System for Director, T3 (Vickers).
- 1—Vickers Transmission System for Papello Director.
- 1—Stereoscopic Fire Director with self-synchronous Data Transmission System (for 37-mm. gun, mobile).
- 2—105-mm. AA Guns, M1, and Mounts, M1.
- 4—3-inch AA Guns, M3 and Mounts, M2 (mobile).
- 1—37-mm. AA Gun Mount, 74 (mobile).
- 2—37-mm. AA Gun Mounts, T2 (mobile).
- 3—37-mm. AA Automatic Guns, M1.
- 1—Instrument Trailer, M1.

Machine Gun Materiel

- 1—AA Multiple Machine Gun Truck Mount, T1 (4 guns).
- 1—AA Multiple Machine Gun Truck Mount, T2 (2 guns).
- 10—Machine Guns, Caliber .50, Browning, M1921, heavy barrel type (with charging slides and longer trigger).
- 4—Mounts, AA Machine Gun, M1 (tripod).
- 4—Sights, open.
- 4—Sights, telescopic, T6.
- 4—Sights, Machine Gun (Coupland).
- 1—Latch, Eccentric.
- 1—Machine, Loading, for Caliber .50 Machine Guns.
- 1—Box, Ammunition, Experimental.

Sound Locator Materiel

- 5—Sound Locators, M1.
- 1—Continuous Rate Acoustic Corrector, T5 (Designation not yet approved).

ENGINEER

- 1—Power Plant, Experimental, Searchlight.
- 1—Occulter, E-1, 60-inch Searchlight.

Antiaircraft Artillery (Italy)

The Italian Government is giving much attention to the question of air defense by antiaircraft artillery units for the reason that its strategic points are particularly vulnerable from the air, especially if contending with a power having command of the adjacent sea. While recognizing the importance and efficiency of air defense by aircraft, Italy apparently believes that defense from the ground is a necessity both for fixed installations and mobile units and establishments.

Technical developments are being carried on to devise a superior anti-aircraft gun of high mobility, improved anti-aircraft fuzes (both mechanical and time), improved anti-aircraft projectiles particularly as regards fragmentation, mechanical fire control directors, an automatic fuze setter, and improved range finders. The development work has been slow due, principally, to lack of funds.

The pilot 75-mm. .45 caliber AA gun has been completed and has been sent to the proving ground for firing. Three others of this type will be ready for delivery by January, 1931. In constructing this gun the tube was auto-fretted. The liner is removable and is not auto-fretted. The liner is about 12-mm. in thickness at the breech and is tapered. It is secured at the muzzle by two keys which prevent rotation and is locked at the breech end by a ring which is screwed into a seat, half in the tube, half in the liner. A unique feature of the pedestal mount is the counter balance spring contained in the pedestal which operates a plunger connected at its upper end to a fork attached to the gun.

It is understood that all mounts will be provided with sights which have double eye pieces so that when practice firing is conducted at ninety degrees from the target the observer may see both the target and the bursts in superimposed fields.

The muzzle velocity of the gun has been lowered from 900 m/s to 850 m/s. This reduction not only adds to the life of the liner but greatly improves the time dispersion of the powder train time fuze.

A practice conducted by students was recently witnessed at the Nattuno Proving Grounds. Range was determined by a two-meter Zeiss stereoscopic instrument, although for purposes of comparison and practice a two-meter coincidence instrument was also used. Opinion has not yet crystallized regarding the comparative values of the stereoscopic and coincidence instruments. The method of fire employed was Case I, the data being shouted by megaphone to the guns. Three shots per gun were fired on each set of data, the corrections for rounds two and three being estimated by the gun commander. The target was towed on a straight course at constant speed at about four thousand meters range and at an altitude of about two thousand feet. The patterns were fairly good. Twenty seconds plus the fuze time was the elapsed time figured. This becomes twelve seconds with a trained crew.

The officers at the antiaircraft school preferred Case I to Case III firing even when the modern Buffi equipment is employed.

It appears that no intermediate caliber between the machine gun and the 75-mm. gun will be adopted. Experiments with the 37-mm. Colt (Vickers) gun have been conducted but it has not proven satisfactory either with the army or the navy. The difficulty in producing a satisfactory time fuze for intermediate calibers probably has had an influence in this decision. Italian opinion favors the time fuze for intermediate calibers. They consider that solid shot or explosive projectiles will result in a large expenditure of ammunition with little return. They believe that the time fuze projectile will greatly increase the probability of hitting or at least have a disturbing effect on enemy pilots. Experiments have been made to improve the Vickers fuze provided for the 40-mm. gun ammunition. This fuze does not function well in the 37-mm. gun due to its much higher rotational speed.

In addition to the 75-mm. gun there has been assigned to the Militia (Black Shirts) for territorial antiaircraft defense a number of batteries of 75-mm. guns, formerly Austrian, and also a number of what were originally 76-mm. AA Russian guns, relined to 75-mm.

Sound locator equipment exists but the sound lag correction device is not incorporated but is under study at the present time. Searchlights are of a standard type produced by an Italian company in Florence.

Winners of the Knox Trophy

<i>Year</i>	<i>Organization</i>	<i>Place</i>	<i>Battery Commander</i>
1913	68th and 143rd Companies	Hawaii	Capt. G. A. Taylor
1914	5th Company	Ft. Williams, Me.	Capt. H. J. Hatch
1915	122nd Company	Ft. Hamilton, N. Y.	Capt. S. G. Shartle
1916	1st Company	Ft. Hancock, N. J.	Capt. C. E. Kilbourne
1917	6th Company	Canal Zone	Capt. M. H. Thompson
1918			Capt. L. B. Chambers
1925	No Award		
1926	Battery E, 52nd C. A.	Ft. Eustis, Va.	Capt. D. B. Greenwood
1927	Battery C, 65th C. A.	Canal Zone	Capt. B. L. Milburn
1928	Battery E, 63rd C. A.	Ft. Winfield Scott, California	Capt. W. H. Sweet

An Underestimated Factor in National Guard Training

By CAPT. ANDREW H. HARRISS, JR., Adjutant,
252nd Coast Artillery (155-mm. TD)

Few organization commanders, if any, appreciate the importance of the systematic apportionment of training in the many subjects designated for the armory or field training periods. Ordinarily, there is quite a contrast between the armory and the field training periods. During the field training period, practically everything is based upon the element of time. Otherwise nothing would be accomplished. There is a time and place for everything, or there would be confusion, instead of the smooth operation of all integral parts.

With this in view, why should there be any difference during the armory period? The element of time is just as important. In fact, if anything, the armory training period is more important in the training of troops. The line between the civilian and the soldier is barely discernible. It is during this period when training is most difficult. Therefore, why should not more stress be laid upon the element of time, with reference to the accomplishment of an end within a given period of time?

How may this be done? The answer is a well-thought-out Training Schedule! When one takes into consideration that the average National Guardsman spends but ninety minutes each week, or nine eight-hour working days each armory training year of forty-eight drills, the call for a systematic and concise training schedule is more pronounced.

If an organization commander is not accomplishing the desired effect, or if his morale is low, let him take inventory, and the chance is that he lacks that systematic and direct training force. His training diet may contain too many ingredients of one sort and too few of another. Too much of anything is demoralizing. A balanced training diet is indicative of a healthy organization.

For what it may be worth to others, I am offering a form of Training Schedule, which embraces a six-month period, on one page. The vertically lettered subjects (a) to (f), inclusive, represent one subject each drill

night, to be determined by the symbol, i. e., Drill 1, period (a), first drill in January. Drill 4, period (d), fourth drill in April, etc.

With an expectancy far in excess of present facilities, it behooves one to take advantage of one's opportunities and to employ every means of accomplishing the desired effect within the time allotted.

Headquarters
Band Section-Service Battery
252nd Coast Artillery (155-mm. TD)
Wilmington, N. C.

Training Schedule Period:
January 1 to June 30, 1930.

January 1, 1930.

*Training Schedule as Directed by Training Memorandum 1,
September 1, 1929*

Subjects

Period	Time 8 to 8:29 p. m.	Time 8:30 to 8:59 p. m.	Time 9 to 9:30 p. m.
Drill 1	(a) The Band, TR-130-5	(a) Inside rehearsal	(a) Outside marching
	(b) The Band, TR-130-10	(b) " "	(b) " "
	(c) Inspection, TR-130-15	(c) " "	(c) " "
	(d) Courtesy, NGR-36	(d) " "	(d) " "
	(e) Articles War, NGR-36	(e) " "	(e) " "
	(f) Soldier, TR-50-20	(f) " "	(f) " "
Drill 2	(a) Ceremonies, MBT 1	(a) " "	(a) " "
	(b) First Aid, TR-112-5	(b) " "	(b) " "
	(c) Discipline, AR 600-10	(c) " "	(c) " "
	(d) Phys. Tr., Manual	(d) " "	(d) " "
	(e) Pistol, TR-50-55	(e) " "	(e) " "
	(f) Litter Dr., TR-405-50	(f) " "	(f) " "
Drill 3	(a) Ceremonies, TR-420-20	(a) " "	(a) " "
	(b) Litter Dr., TR-405-90	(b) " "	(b) " "
	(c) Tent Dr., TR-225-5	(c) " "	(c) " "
	(d) Hygiene, TR-113-5	(d) " "	(d) " "
	(e) Inf. Pack, TR-50-80	(e) " "	(e) " "
	(f) Articles War, NGR-36	(f) " "	(f) " "
Drill 4	(a) Inspection, Clothing	(a) " "	(a) " "
	(b) The Band, TR-130-5	(b) " "	(b) " "
	(c) The Band, TR-130-10	(c) " "	(c) " "
	(d) The Band, TR-130-15	(d) " "	(d) " "
	(e) Courtesy, NGR-36	(e) " "	(e) " "
	(f) Customs, Jas. A. Moss	(f) " "	(f) " "
Drill 5	(a) Inspection, Instrs.	(a) " "	(a) " "
	(b) The Salute, TR-50-15	(b) " "	(b) " "
	(c) The Soldier, TR-50-20	(c) " "	(c) " "
	(d) Pistol, TR-150-20	(d) " "	(d) " "
	(e) Uniform, AR-600-40	(e) " "	(e) " "
	(f) Customs, Jas. A. Moss	(f) " "	(f) " "

Symbol: (a) Jan.; (b) Feb.; (c) March; (d) April; (e) May, and (f) June.
School for Noncommissioned Officers 9:35 to 10:00 p. m. each drill night.

Navy Finds Low Wave Sets Are Hazard on Ships—High-Frequency Apparatus Holds Danger of Igniting Explosives, Tests Reveal

That short-wave or high-frequency transmitting apparatus installed aboard battleships and naval aircraft carrying explosives constitute a hazard was revealed in a report made by the bureau of engineering of the Navy Department. The report is the result of a test still to be completed and extending over a period of six months.

Investigations made aboard the battleship *Texas* by the bureau showed that it was possible to light an eighteen to twenty-four-volt lamp by connecting it between the breech of a turret gun and the turret; to explode a primer in the breech by utilizing the energy; to light airplane running lights when exposed to the field of a short-wave antenna, and to set off aircraft flare primers when exposed to a high-frequency field.

As a result of the tests, Admiral Charles P. Hughes, chief of naval operations, has ordered that "extraordinary safety precautions" be taken. He also ordered that no transmitters on shipboard shall be operated on frequencies above four thousand kilocycles during target practice, 75-mm. or below, when powder is out of magazines, when fueling ships.

The hazard is caused by a phenomena of short-wave or high frequency transmission. It was stated that the hazard is negligible with apparatus operating on medium and long-wave lengths. Danger of spark has been eliminated by shielding and grounding of all equipment within the field of a long wave antenna. However, with short wave transmitters the energy is absorbed and carried by a metallic substance within the field of the radiator. As a result it has been recommended by Rear Admiral H. E. Yarnell, chief of the engineering bureau, that special precaution be taken in the installation of the apparatus, and that high-frequency antenna be located on shipboard at points far remote from resonant objects, such as guns and other equipment, which, when energized, constitute a hazard.

It is also urged that no radio apparatus having a power of more than fifty watts be employed aboard airships not inflated with helium, and particular attention should be paid to the bonding or connecting of metal parts in lighter-than-air craft.

While this is also a possible source of danger to the Coast Artillery, the danger is exceedingly remote. In order to accomplish this effect, the transmitting set must be powerful and located very close to the explosive. This may happen aboard a Navy ship, where sets are powerful, and where they must of necessity be located very close to guns and magazines.

These conditions do not obtain ashore. The Coast Artillery does not at present use short wave transmitting sets, and if it ever does, no reason is seen why they should be of very high power, or why they should be located close enough to batteries to be dangerous. The field strength of a trans-

mitting set varies inversely as the square of the distances, approximately.

Primers are fired by heat, and heat only. In the friction primer the heat or spark is produced by friction. In the electric primer, a very fine wire in contact with explosive, is heated to a red heat by electric current. There are no spark gap effects and no magic. Heat and heat alone causes the effect. If the transmitting set is to fire an explosive it must induce sufficient current in a conductor in contact with the explosive to heat it up to a red heat.

Powder in powder cans, in magazines is safe. The metal can shields the powder completely. It would take a lot of current to warm up the powder can to the point where it would ignite the powder. This is also true of primers, electric or other types, in a metal can. They can only be ignited by heat.

A primer, inserted in a gun, with the firing circuit complete, is somewhat more dangerous, because here we have a circuit, in which current may be induced by the short wave transmission. The circuit acts as an antenna. But in order to fire the primer, sufficient current must be induced to heat the fine wire inside, to a red heat. Transmitting sets on attacking ships, hundred of yards away, or on an airplane which flits by are not going to be dangerous in this way. The energy of the field decreases as the square of the distance. A tremendous increase in the power of a transmitting set makes very little difference in the energy received at a distant station.

Apparatus can be set up in a battery which will fire primers by current induced by radio transmitting sets, as an experimental laboratory proposition. But this is not a service condition. The enemy cannot do it. The Coast Artillery does not now have to worry about having its explosives set off in this way.—*Coast Artillery School.*

COAST ARTILLERY BOARD NOTES

Projects Completed During May

No.	Title	Action Taken
700	Test of Stereoscopic Trainer T-1.	Recommended to be adopted as standard and issued to the service.
772	Test of Motor Vehicles as Prime Movers and Cargo Trucks AA.	Recommend five Walters tractor trucks be issued to 61st C. A. (AA) for extended service test.
780	Gauges for Seacoast and Railway Artillery Propellor Charges.	Recommend to be issued to the service.

Projects Under Consideration

609	Comparative Test of Self-Contained Range Finders.	Test completed.
629	Test of Gunners Quadrant T-1.	Test completed.
661	Illumination of Mortar Pits and Gun Emplacements for Night Firing.	Project reopened and undergoing study.
681	Test of Fast Towing Seacoast Target.	Awaiting result of study by Navy Department.
689	Special Seacoast Target Practice for Training Aerial Observers.	Awaiting reports of practices.
694	Test of Erosion Charts.	Awaiting return of Jekaduma chronograph from Panama.
698	Test of Sight Mount T-5 for 155-mm. Guns.	Test completed.
701	Comments on Target Practice Reports.	Submitted as reports are received.
702	Test of Headset Type HS-17.	Awaiting report of test from Pearl Harbor.
712	Conduct and Adjustment of AA Fire.	To be included in Vol. II, C. A. Field Manual.
722	Tow Chains for Tractor Artillery.	Under test by 51st C. A. (TD).
723	Causes of Misfires.	Report in preparation.
727	Standard Single Conductor Mine System.	Study continued.
731	Lighting Devices for Sights, Scales, Aiming Rules for Ry. Artillery.	Reopened for study.
750	Faster Loading for Coast Artillery.	Under study.
753	Test of 8-inch Howitzer Platform for Use as Semi-Permanent Firing Position for 155-mm. Guns.	Test completed.
761	Test of Experimental Reel Cart Type RL-23.	Under test by 51st C. A. (TD).
764	Reminder List for AA Target Practice.	Under study.
781	Table of Organization for AA Regiment.	Under study.
782	"Brown" AA Spotting and Graphical Plotting System.	Under study.
788	Modification of Traversing Mechanism for Case III Fire.	Test completed.
789	Comments on Manual for Commanders of Large Units.	Under study.
790	Fire Control Power Panel (Modified BD-17).	Under study.

YOU TELL EM

For Officers Visiting Canada (Who *wants* to wear a uniform?)

The Commissioner of Immigration (Canada) has issued Official Circular No. 30 to all Canadian Immigration officers which reads in part, as follows:

The attention of the Department has been directed to the fact that in accordance with international practice the entry into one country from another, in uniform, either individually or in body, of members of the sea, land, and air forces of a foreign country, whether armed or unarmed, is arranged in advance between the governments of the countries interested, such action usually being taken through diplomatic channels.

The Department of Immigration and Colonization will in future be informed of arrangements made for the entry of Canada of members of the naval, military, or air forces of foreign powers and such information will be transmitted to officers in charge at the ports of entry concerned, with appropriate instruction.

How to Keep from Growing Old

The following chatty letter from Col. James Prentice, U. S. A., retired, recently received from Coconut Grove, Miami, Florida, mentions a number of developments believed to be of interest.

“Down here I am able to keep pretty well posted on scientific matters because some of the greatest engineers (Kettering of General Motors) visit Miami in the winters and their views can be obtained informally. Glenn Curtiss is here most of the year and aircraft engineering is a constant subject of conversation among his satellites. He is still inventing when business interests will permit. Curtiss has recently introduced, what he calls, an aerocar. He noticed while towing airplanes from factory to field that tool boxes, etc., in the fuselage of the plane did not jar out and that heavy loads could be carried in these light structures, especially after they had adopted the new doughnut tire which is all tire and little hub. Observing this he constructed a trailer which is coupled to the towing car by the use of an aeroplane wheel clamped horizontally in the rear of the auto body so that the shocks of the car in traction are transmitted to the trailer only through the inflated tire. He built one for himself, at first, to use in recreation and hunting trips. His friends like it so well that he started a factory at Opa Locka (where my bamboo experiments are) and it is busy supplying them to millionaires and hotels who use them instead of buses. They are equipped with easy chairs, bunks, buffets, etc., so that one can be very much at home en route, as in a private car. Curtiss takes two drivers and a high class roadster and travels north and south at a terrific speed because there is no jar to the trailer and the car is steadier and

faster than without the trailer, strange to say, because the trailer is accurately streamlined. This appears to have possibilities as a staff car or ambulance. This trailer costs very little and will do all the work of a big bus. The Pan American Air Lines use them in transferring passengers to and from their airport. I will get some of Curtiss' men to write it up and send it in to you.

"The new New York, Rio de Janiero and Buenos Aires air line (which makes it to Bueno Aires in seven days) has established its American supply base and customs port here in Coconut Grove and I see their great twenty-five-passenger boats as they come and go daily on those weird trips that we used to dream of and which are now a reality. The Goodyear people have an airship hangar at Opa Locka, too.

"I had an interview with Captain Woolson when he was down here last winter, working up the Packard Deisel. I saw the engine first hand and had a real inside view of the matter. Woolson was going to investigate my metal lining proposition but the poor fellow was killed up north a while ago so the matter is now at a standstill.

"My Chrysler Sixty which I bought in 1926 and lined with chromium is still running fine with a speedometer record of one hundred and five thousand miles. The motor has the original valves and connecting rods but I put in a new set of pistons at ninety thousand miles since, at that time, I noticed certain crystals on the old ones. Chromium is practically neutral so far as affecting explosion is concerned so this engine never knocks. I clean the little carbon that adheres to the valve chamber with some pellets a friend of mine got up. It is only necessary to stick one or two down through the spark plug hole every thousand miles or so and the carbon loses its adhesive power. This is a real step in advance since it permits motors to be decarbonized without removing the head. When the pellet becomes uniformly dependable for this purpose I will send in an article on it.

"During the war when I was much interested in balloon and airplane observation I noted that it was impossible to deceive a good observer, equipped with grids for his glasses, by using green and other paints to simulate grass and foliage. Paint would look pink through the glasses and where the real vegetation left off and the camouflage started was easy to determine. This caused me to investigate fast-growing grasses so as to have real natural colors for camouflage. I found I could grow a real lawn, like a carpet, in a few days by sowing seeds on treated burlap in a favorable place. When the sprouts were tough enough I could roll up the burlap, grass and all, and relay it where it was needed. The Chinese soya bean was the best bet in hot, dry weather. At Cape Henry I experimented quite a little with these and they grew fine on pure sand, if given some colloids. The use of colloids is the real thing in agriculture. I can now make real sticky mud out of the driest sand by the addition of a small percentage

of some colloids of aluminum, iron, silicon and calcium phosphate which is mined here in Florida. Sand thus treated will not lose its fertilizers in wet weather and will hold water about one hundred times as long as untreated sand. Furthermore, when treated, the sand acquires many of the characteristics of rich heavy soils and plants grown in it have fine thick stems and leaves and are very hardy. By use of these colloids I once made a "mystery" lawn for the 1st Sound Ranging Battery at Fort Eustis. I put them on one night as a rain was coming up and in about two days grass started where we had had that terrible light yellow sand and clay which would not bear anything. It seems to me that this development might have application in the Coast Artillery because we still have the old sand and glare problem—and always will—as well as the new one of concealment against aerial observation. In view of the growth of aviation with the increased necessity for camouflage in the future this development may acquire considerable importance.

"There are some C. A. Reserves here in Miami but they go to Pensacola for their active duty training. I have suggested the use of Chapman Field to the C. A. Captain (?) who is instructor at Miami. This is a big reservation with lots of swamp to shoot over. The bay is shallow and there are few boats to make trouble and delays.

"I read the COAST ARTILLERY JOURNAL regularly and feel that I am up to date and could come back into active service until the new officers get the swing of things."

Just a Little Difference of Opinion

The Army, Navy and Air Force Gazette recently published a short article giving the views of Admiral of the Fleet, Earl Beatty, on the functioning of the present British of air force organization.

Twelve years have now passed since the Royal Air Force was organized as a Service independent of the Army and the Royal Navy. It was born of war and of the muddles of war, and there were many critics of the scheme when it was first announced. In the years immediately following the war there were many determined attempts to destroy the new structure and to restore to the Army and the Navy their respective air arms. These attempts were defeated, and the Air Officer chiefly responsible for the defeat was Sir Hugh, now Lord Trenchard. The Royal Air Force is now firmly established, and it is strange that Admiral of the Fleet Earl Beatty should in these present times attempt to revive an old controversy and to retrace historic steps. The opportunity was given him by Lord Trenchard, who, on April 9, opened a debate in the House of Lords on the function of the air weapon. Lord Trenchard's intention was to induce the Government to consider the uses of the Royal Air Force in relief of the older Services in various parts of the Empire. He suggested that Air Force units might be employed in substitution for

Army and Navy units in certain places to be selected. By this means there would be increased economy in military affairs. It was natural that there should be some disagreement with his view, but Lord Beatty alone has seized the opportunity to suggest a return to old schemes, supporting his arguments with open attacks on the youngest Service.

In a letter to *The Times* he said that the "Navy today is the most up-to-date and efficient Navy in the world, except in one respect, and that is its air equipment. The air wing of the United States Navy, owing to the single control exercised over the United States Navy, is far ahead of our Fleet Air Arm. They carry out exercises on a scale quite impossible in our Fleet. Co-operation between their shipborne and shore-based aircraft has reached a high state of efficiency; with us it is non-existent." Where did Lord Beatty make these discoveries? Is it possible that during his period of service as First Sea Lord he knew very little of the work done by the Fleet Air Arm? Efficiency cannot be estimated in terms of numbers. One nation may possess an air arm of one hundred machines and its neighbour possess one of one thousand machines, but the smaller force may be the most efficient. Lord Beatty need not be anxious about the efficiency of the Royal Air Force. There is no more efficient air arm or air force in the world. It is curious that he should speak of the United States Naval Air Service, as in that Service there is a mass of grumbling which bears close resemblance to that common in the Royal Naval Air Service. United States naval pilots complain that they are neglected by the Navy Department and that the older naval officers have little sympathy with the new weapon. Many of these Air Service officers would like to bring about the formation of an independent United States Air Force. Later in his letter he said that "We are the highest taxed country in the world, and yet we commit ourselves to the extravagance of having three fighting Services. Reduce them to two and we should save millions of public money with greater efficiency, as in the United States." Lord Beatty should have supplied figures. A return to the two-Service system would not save "millions of public money." The greater strength of the two United States air arms is due to the much greater expenditure authorised by Congress. If we are to follow the United States it will mean a vast increase in expenditure, an increase which would not be authorised by the House of Commons while the national finances are in the present serious condition.

There is one other strange passage in Lord Beatty's letter. He said that "A military force equipped with air weapons, although commanded by an R. A. F. officer, exercises military control and not air control." But surely an Admiral commanding a fleet at sea is also exercising military control? All warlike operations are military operations.

Whatever may be our personal views, it is now too late for a reversion to the old system. The Royal Air Force has come to stay—unless indeed

the three Services vanish in favour of one, which is unlikely. The Royal Air Force has justified itself, and should be left free from criticism which is purely destructive. There was a time when Lord Beatty was in a position to further the cause of the Royal Naval Air Service. There is no indication that at that time he had the belief in air power which he now shows in his letters.

W. E. DE B. W.

**To Let the Coast Artillery Board Know Its Efforts
Were Appreciated**

Office of the Instructor
250th Coast Artillery (HD)
California National Guard
San Francisco, California

The Editor, the COAST ARTILLERY JOURNAL

Dear Sir:

It is requested that I be furnished with fifteen (15) copies of the COAST ARTILLERY JOURNAL for March, 1930, and that they be sent to me at the above address.

It might be stated that these issues are desired for the article on target practice analysis, for the instruction of officers of this regiment.

A check to cover will be mailed on receipt of your invoice.

Very truly yours,

C. S. DONEY,
Major, C. A. C. (DOL).

This Would Be Expensive

The Editor, the COAST ARTILLERY JOURNAL

Dear Sir:

Sometime ago I received a letter from you stating your policy of the JOURNAL, and asking for suggestions. Here is my offering.

The JOURNAL has always contained some articles of interest to every subscriber or reader. However, as officers of our Corps are on varied assignments, the interest in the articles is governed to a certain extent by this assignment. Instead of carrying a complete file of JOURNALS on the many changes of stations, would it not be better to carry a live file of the articles one is interested in?

My suggestion is to print the JOURNAL on the same size sheet as the present AR's and TR's. Have the slots for Kalamazoo binder on the binding edge. The book to be bound as at present for those who wish to continue the old way. Adopt a classification for different types of articles. This may be numerical, but preferable a simple system of letters similar to "Standard Abbreviations." Number the articles. In the upper

right-hand corner have the letter code, serial number and page of the particular article. Page number of monthly number at bottom of page. The first page of each article to show the month and year when issued. "Volume" and "Number" to be added, if desired.

Yours truly,

Captain.

We Call This a Nice Letter

The Editor, the COAST ARTILLERY JOURNAL

Dear Sir:

I would have renewed by subscription had I received only the customary notice. I believe, personally, that an officer should subscribe to the JOURNAL of his own branch, as a matter of principle.

As you have bucked up the publication a great deal, I renew my subscription with more than the customary grace. Were you starting on your job the day you dated your letter, I would have been sure that the JOURNAL would receive new pep, because an editor who will take the trouble to not only address a letter in the matter, but sign it also, is bound to do something of good for it.

I believe I realize certain limitations that you work under. So when I say that the *Military Engineer*, the Ordnance publication, and the *Infantry Journal* are to my mind very fine service papers, I do not infer that the COAST ARTILLERY JOURNAL is not also coming strong.

Separated as we are, news of the Corps and its personnel is not easy to get. Such items are of interest. Names are news. . . .

You have my sincerest good wishes for success.

Cordially yours,

C. R. ROBERTS,
Captain, 12th C. A

We Won't Attempt to Hide Our Pleasure

The Editor, the COAST ARTILLERY JOURNAL

Dear Sir:

After being among those absent from the subscribers' list for two years am going to try again. It looks like you are going to have a better JOURNAL. Bill me.

Respectfully,

E. B. WALKER,
Major, C. A. C.

COAST ARTILLERY ORDERS

Brig. Gen. William E. Cole, command 1st C. A. Dist., to Hawaiian Div., sailing New York, September 27.

Col. Andrew Hero, Jr., retired, May 20, with rank of major general.

Col. Frank S. Long, retired, May 19.

Col. William H. Monroe, from Philippines, to instructor, Org. Res., Portland, Ore. Previous orders revoked.

Col. Granville Sevier, from Hawaii, to N. G. duty, headquarters, Seventh Corps Area, Omaha.

Lieut. Col. Robert W. Collins, promoted colonel, May 21.

Lieut. Col. William A. Covington, promoted colonel, May 27.

Lieut. Col. Frank Geere, 6th, Fort Winfield Scott, to Hawaii, sailing San Francisco, September 3.

Lieut. Col. Franc Lecocq, from Philippines, to 12th, Fort Monroe.

Lieut. Col. James L. Long, from Org. Res., Portland, Ore., to Fort Mason, May 26, to command U. S. A. T. *Cambrai*.

Lieut. Col. Jacob A. Mack, 3rd, Fort Rosecrans, to home, Aug. 2, and await retirement.

Lieut. Col. Henry C. Merriam, promoted colonel, May 21.

Lieut. Col. Walter W. Merrill, from Hawaii, to Org. Res., Cincinnati.

Lieut. Col. James F. Walker, Org. Res., New York, to Army retiring board for examination.

Maj. Henry W. T. Eglin, Org. Res., Philadelphia, to student, Army Industrial College, Washington, August 18.

Maj. Philip S. Gage, from Hawaii, to headquarters, 4th C. A. Dist., Fort McPherson.

Maj. Elmore B. Gray, from Panama, to R. O. T. C., Washington University, St. Louis.

Maj. Francis A. Hause, from student, C. & G. S. School, to Org. Res., Philadelphia.

Maj. Samuel F. Hawkins, 5th, Fort Totten, to Org. Res., Detroit.

Maj. Paul H. Herman, from Panama, to Org. Res., headquarters 3rd C. A. Dist., Fort Monroe.

Maj. John B. Martin, from student, Coast Artillery School, to instructor, N. H. N. G., Concord, upon completion of course. Previous orders revoked.

Maj. George F. Moore, from Philippines, to office, Chief of Coast Artillery.

Maj. Hollis LeR. Muller, from 7th, Fort DuPont, to Org. Res., Pittsburgh.

Maj. Randolph T. Pendleton, from instructor, Coast Artillery School, to Philippines, sailing New York, August 20.

Maj. Charles J. Schaefer, Jr., CA-Res., from East Orange, N. J., to active duty, Coast Artillery School, Fort Monroe, July 13.

Maj. Fred Seydel, from Philippines, to Org. Res., San Francisco.

Maj. Francis J. Toohey, from Org. Res., Detroit, to 6th, Fort Winfield Scott, sailing New York, July 18.

Maj. Lawrence B. Weeks, from student, C. and G. S. School, Fort Leavenworth, to instructor, National Guard, New York, upon completion of course, instead of as previously ordered.

Maj. Ralph W. Wilson, from R. O. T. C., Washington University, St. Louis, to instructor, Missouri N. G., Monett, September 1.

Maj. Berthold Vogel, to sail from New York, September 27, for Hawaii, instead of August 12.

Capt. Percy Adams, from Panama, to 62nd, Fort Totten.

Capt. C. E. Atkinson, 62nd, Fort Totten, to R. O. T. C., Mass. Inst. Tech., September 1.

Capt. James C. Bates, 9th, Fort Banks, to Panama, sailing New York, September 11.

Capt. Hugo A. Berthold, CA-Res., from New York City, to active duty, Aberdeen Proving Ground, July 6.

Capt. Herbert H. Blackwell, from instructor, Coast Artillery School, Fort Monroe, to Advanced Course, Coast Artillery School, as student.

Capt. Ben B. Blair, 12th, Fort Monroe, orders to Panama revoked.

Capt. Clarence E. Brand, from 52nd, Fort Monroe, to detail with the J. A. Gen'l Dept., August 15, and to University of Virginia Law School, Charlottesville, as student. Previous orders revoked.

Capt. Thomas L. Cleaver, from instructor, N. Y. N. G., New York, to 11th, Fort H. G. Wright.

Capt. John B. Day, from Walter Reed General Hospital, to Fort Eustis, thence home and await retirement, June 3.

Capt. Clifford D. Hindle, from Hawaii, to 6th, Fort Winfield Scott.

Capt. Willard W. Irvine, from Philippines, to 52nd, Fort Monroe.

Capt. Creighton Kerr, from Philippines, to 12th, Fort Monroe.

Capt. Percy S. Lowe, to sail New York for Hawaii, August 12, instead of July 18.

Capt. Robert N. Mackin, Jr., from student, Coast Artillery School, to Panama, sailing New York, September 11.

Capt. Howard S. MacKirdy, from Hawaii, to 51st, Fort Monroe.

Capt. Edward B. McCarthy, from student, Coast Artillery School, Fort Monroe, to student, Chem. War. School, July 7, thence to 9th, Fort Banks, August 1.

Capt. Maurice Morgan, from Philippines, to 6th, Fort Winfield Scott.

Capt. Everard F. Olsen, from Sub. Mine Depot, Fort Totten, to Philippines, sailing New York, August 20.

Capt. Earl R. Reynolds from student, Coast Artillery School, to 11th, Fort H. G. Wright, upon completion of course.

Capt. John L. Scott, promoted major, May 21.

Capt. Thomas P. Walsh, 51st, Fort Monroe, to Hawaii, sailing New York, August 12.

1st Lieut. William I. Allen, from Coast Artillery School, Fort Monroe, to student, Mass. Institute of Technology, June 10.

1st Lieut. Geoffrey C. Bunting, promoted captain, May 1.

1st Lieut. George R. Burgess, from student, Coast Artillery School, to student, Army Industrial College, Washington, August 18.

1st Lieut. William G. Devens, 52nd, Fort Hancock, detailed in Ord. Dept. and to Watertown Arsenal, Ordnance School, as student, July 5.

1st Lieut. John M. England, 11th, Fort H. G. Wright, orders for duty with pilgrimage of war mothers, revoked.

1st Lieut. Melton A. Hatch, from Fort Totten, to student, Coast Artillery School, Fort Monroe, August 30.

1st Lieut. Herbert B. Kraft, from Utah State Agricultural College, Logan, to 6th, Fort Winfield Scott.

1st Lieut. George J. Loupret, to sail New York, September 27, for Hawaii, instead of August 12.

1st Lieut. Frank C. McConnell, to sail from New York for Hawaii, August 12 instead of July 18.

1st Lieut. Wilmer B. Merritt, 61st, Fort Monroe, to 12th, Fort Monroe, May 14.

1st Lieut. Thomas W. Munford, 13th, Fort Crockett, to Philippines, sailing San Francisco, September 10.

1st Lieut. J. F. Simmons, 12th, Fort Monroe, orders to Panama, revoked.

1st Lieut. Stanley W. Smith, CA-Res., from Brooklyn, to active duty, Aberdeen Proving Ground, July 6.

1st Lieut. George E. Young, 11th, Fort H. G. Wright, to Europe with pilgrimage of mothers.

Dana D. Alexander, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Neal E. Ausman, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

David H. Baker, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Oscar B. Beasley, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Lawrence A. Bosworth, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Harry R. Boyd, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

2nd Lieut. Lawrence H. Brownlee, 62nd, Fort Totten, to Panama, sailing New York, September 11.

2nd Lieut. Charles G. Calloway, relieved from detail in Air Corps and from Brooks Field, to 62nd, Fort Totten.

2nd Lieut. George A. Chester, from student, Leland Stanford Junior University, Palo Alto, Calif., to 6th, Fort Winfield Scott, September 1.

Charles C. Cloud, Jr., graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

2nd Lieut. James F. Colline, C-A-Res., from Pittsburgh, to active duty, Coast Artillery School, Fort Monroe, July 1.

Robert E. Cron, Jr., graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

James T. Darrah, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

John B. F. Dice, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

2nd Lieut. Everett C. Dunham, from Philippines, to 69th, Aberdeen Proving Ground.

Carl H. Fernstrom, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Arthur L. Fuller, Jr., graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

2nd Lieut. Edwin G. Griffith, from detail in Air Corps and from Fort Sam Houston, to 13th, Fort Barrancas.

2nd Lieut. Lawrence M. Guyer, 13th, Fort Barrancas, to Panama, sailing New York, August 7.

Robert F. Haggerty, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Marvin L. Harding, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

William H. Harris, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Grant E. Hill, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

2nd Lieut. John T. Hopper, resigned, June 12.

Adam A. Koscielniak, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Hubert du Bois Lewis, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

James S. Lunn, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

2nd Lieut. Emmor G. Martin, from Hawaii, to 13th, Fort Barrancas.

2nd Lieut. Charles W. McGeehan, from Hawaii, to 62nd, Fort Totten, instead of to 14th, Fort Worden.

2nd Lieut. R. E. O'Connor, 64th, Fort Shafter, transferred to Field Artillery, May 9. To remain in Hawaii.

Charles J. Odenweller, Jr., graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Edwin S. Perrin, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Willis A. Perry, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Arthur C. Peterson, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Cyrus L. Peterson, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Clark N. Piper, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Paul A. Roy, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

James S. Sutton, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Alden P. Taber, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Joseph H. Twyman, Jr., graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

2nd Lieut. William A. Weddell, 51st, Fort Monroe, to 69th, Aberdeen Proving Ground, July 1.

Robert J. Wood, graduate U. S. Military Academy, appointed second lieutenant, C. A. C.

Master Sgt. Benjamin Eisenberg, Battery E, 3rd, Fort Stevens, retired.

Master Sgt. William H. Stevens, C. A. S. detachment, Fort Monroe, retired.

Master Sgt. Andrew J. Underwood, 8th, Fort Constitution, retired.

Tech. Sgt. John Kolthoff, 52nd, Fort Hancock, retired.

1st Sgt. Charles Rose, Battery E, 7th, Fort DuPont, retired.

1st Sgt. Michael Varley, 12th, Fort Monroe, retired.

Staff Sgt. Paul A. Schwenke, 3rd, retired (at Fitzsimmons Hospital, Denver).

Staff Sgt. Ransom P. Wood, Battery D, Fort Rosecrans, 3rd, retired.

BOOK REVIEWS

Saladin, Prince of Chivalry. By Charles J. Rosebault. New York: Robert M. McBride & Co. 1930. 6" x 9". Ten illustrations. 303 pp. \$3.50.

This is another volume in a series which McBride is publishing on the lives of famous Oriental rulers of the middle ages. "Gengis Khan," "Tamerlane" and "Attila" have been produced and now appears a biography of Saladin, the Saracen Sultan, the well-known opponent of Richard Coeur-de-Lion in the Third Crusade. Mr. Rosebault has gone largely to Arabian sources for his material and consequently has produced a life from the Moslem standpoint. In reading his book we do not feel that the followers of Islam were intruders in Jerusalem; on the contrary our sympathies are with the Saracens and we instinctively resent the arrival of the Crusaders as an unwarranted intrusion.

The picture that the author paints of the high-mindedness of Saladin and the perfidy of his Frankish foes is anything but gratifying to the modern Christian. It was an age of extreme intolerance but, if Mr. Rosebault is to be believed, the followers of Islam were more enlightened, more charitable and less bigoted than the followers of Christ were at that time. It is only fair to remark that this is in line with other recent historical research connected with the Moorish dominion in Spain, the Arabs and Saracens in the Levant and the Moslem Moguls in India. At a time when the Christian nations were sunk in ignorance, the "infidel" Moslem was enlightened, civilized and tolerant in comparison, and of all the Moslems Saladin was without a peer. Even in his own time his Christian enemies could not help admiring his sterling character and knightliness and this was indeed high praise. No matter what the provocation he never violated a truce, he kept his word faithfully and, except on rare occasions, was most generous to his prisoners.

Saladin had a remarkable career. A Kurd by birth, not of a royal house, he first distinguished himself in the conquest of Egypt, becoming Sultan of that province under Nur-ed-din at Damascus. When Nur-ed-din died Saladin, by virtue of conquest, took his place and extended the Saracen dominions, the capture of Jerusalem from the Christian king being the exploit best known to the western nations. This precipitated the Third Crusade which regained temporarily some coastal towns for the Christians, but Jerusalem remained in Moslem hands until Allenby's entry in 1918.

Perhaps in nothing did Saladin's character shine brighter for his day and generation than in the treatment of his relatives. The Oriental custom until comparatively recent times was to kill or imprison all brothers and other near relatives for fear that they would revolt or assassinate the monarch, but Saladin, by placing them in positions of trust, obtained a wholehearted cooperation which stood him in good stead on several occasions.

The method of conducting sieges in the Holy Land is well and lucidly described and the campaigns can be followed on the map provided, although the reader must not expect much strategy. However, Saladin was a master of tactics which is well brought out in the descriptions of the different battles.

Mr. Rosebault has given us an entertaining and instructive biography of a great soldier and ruler, one which is especially valuable because of its presentation from the Moslem standpoint.

R. E. W.

Freedom of the Seas. By Lieut. Commander J. M. Kenworthy and George Young. New York: Horace Liveright. 6" x 9". 16 Illustrations. 277 pp. \$4.00.

Lieutenant Commander Kenworthy was in the Royal Navy for sixteen years, including the war period. He is now in Parliament as a Labor member. Prof. George Young comes of a British naval family. For twenty years he was in the diplomatic service, including seven years in Washington under Lords Pauncefote and Bryce. He was in the Royal Marines during the war and is also a Laborite. From this it will be seen that while both authors might be classed as radicals from their political affiliations, nevertheless their antecedents tend to give them a practical, realistic view, not the visionary kind so often held by reformers.

This view is very evident in their discussion on the possibility of future wars, "that police wars are still indispensable will be admitted by all but the most fanatical pacifists. That idealist wars for national liberties or irredentist wars for national lands are probable will be allowed by all but the most cynical politicians. That even political wars for imperialist interests or ideals are impossible only the most optimistic Utopists would assert. That in a war which includes most of the principal powers they will fight irrespective of restrictions or regulations is also now only too obvious." It is for the purpose of making any war less probable, and when war does occur, of localizing it, that the authors have prepared this book.

It starts with an historical outline of two conflicting dogmas, Command of the Seas, which has been so dear to the heart of the British since the earliest times, and Freedom of the Seas, the American slogan since we achieved our independence. That these two have conflicted in the past is beyond dispute and our authors believe that there is great danger of a conflict over them between the two great Anglo-Saxon nations in the not far-distant future, unless something radical is done to prevent it. They think that conditions of warfare have so changed and international relations are now so different that these two dogmas can be merged into a common policy of benefit alike to Britain and the United States. This is the keynote of the entire work, it is an effort to show a community of interest, and it advocates an Armed Neutrality of the two countries for the preservation of the peace of the world through sea power.

In the opinion of the authors the command of the seas has already virtually departed from Britain, as that country cannot hope to compete with the United States in a ship building program. On the other hand, no matter how large a navy we build Great Britain will still retain a supreme position in Europe and the Near East and such a strong secondary position in the world at large that we cannot guarantee the freedom of the seas in peace and war without Britain's consent. An "understanding" between the two is, therefore, the obvious course. The two navies together could effectively command the seas against all comers and could impose, in any maritime war between other nations, such rules as would secure that freedom of the seas for which Americans have long contended and which are equally beneficial to Britain when that country is at peace.

"Free ships make free goods, except contraband of war" would then become the rule and contraband of war would include only munitions. Just as it is now illegal to enlist in a neutral country for the armies of a belligerent, or for a neutral to sell ships for conversion into cruisers, or to permit the outfitting of warships in its ports, so would it be the duty of a neutral to prevent the export of munitions to a belligerent.

The Armed Neutrality of the Anglo-Saxon nations would likewise control

the question of blockade. Localized wars between other nations would be required to operate under the old rules of warfare, which required a close blockade of any port. A wide commercial blockade interfering with neutral commerce on the high seas, as practised during the last war, would be permitted only by the action of the Armed Neutrality.

The authors also advocate neutralizing and demilitarizing the "narrow seas," such as the North Sea, the Channel, the Baltic and Black Seas, under the guarantee of the Armed Neutrality.

The "understanding" advocated by the authors might take several forms, as an example the British might agree to a revision of the League of Nations Covenant embodying the principle of the Freedom of the Seas, one of President Wilson's fourteen points which was carefully omitted from the peace settlement. They might also give notice to the League that they would take no naval action or blockade against any State under Article XVI of the Covenant "without the consent of the United States and none against any American State without the United States' cooperation." This would be a recognition of what is already a fact, no blockade could be successfully effective except under those conditions. In return the United States might "concede to our insular position and peculiar ideals some sort of superiority in surface warships of the police cruiser type."

The story of the Peace Conference of 1919 is given in considerable detail and the position of the United States with reference to the League of Nations and to naval armament is shown by various quotations, notably from letters of Admiral Benson to the President. Some inside information regarding the activities of the British Legation in Washington during our Spanish war makes interesting reading.

Doubtless few will agree with Commander Kenworthy and Professor Young in toto, but there can be no doubt that they have given us something to think about and the more thinking people do along sane military lines, the better it will be for the peace of the world.

R. E. W.

The Generalship of Ulysses S. Grant. By Col. J. F. C. Fuller. New York: Dodd, Mead & Co. 9¼" x 6¾". 452 pp. \$5.00.

The military student always finds the work of this author of interest. Perhaps this interest is maintained because the professional soldier will soon discover that he disagrees with many of Colonel Fuller's contentions. This book, as the author frankly admits, is an attempt to apply certain principles of war (which he discussed at length in a previous book, "The Foundations of the Science of War") to the military career of General Grant. These principles, as presented by Colonel Fuller at first appear to be new but upon closer examination it is discovered that they are really those taught in our service schools and which were used by Alexander, Hannibal, Napoleon and other great captains of history. No new principles of warfare have been discovered for thousands of years. Methods of accomplishing results, the tools used, have changed but not the principles.

This latter statement would seem to be a justification of Colonel Fuller's rather poor opinion of the professional soldier. He says, "Professionalism has been, and is, still the curse of armies, because it rapidly petrifies, it is a thing of tradition but not of fact." This quotation does not seem exactly consistent with the following quotation found two pages after: "In the Civil War the ablest generals were men who had been educated at West Point, and who had breathed the atmosphere of war in Mexico." In the next sentence the author has attempted to eradicate this inconsistency by continuing: "Men of no formal

school, no fixed doctrine, and of no set ideas. Men who in many cases, notably Grant and Sherman, had left the army years before the war and in place of being asphyxiated by mess life had gained independence in the struggle for existence." This "independence" is somewhat questionable. If history informs us correctly, at the outbreak of the Civil War Sherman, after a civilian career, full of failures, was the newly employed head of a rather small military school in Louisiana. Not only was the continued existence of the school rather precarious but the continuation of civilian Sherman as its head was almost equally so. As for civilian Grant, his career after he left the army was not a continuous series of triumphs. When history opened her pages and permitted him to write his name therein he was leading a struggling existence as a "hewer of wood" if not a "drawer of water."

But to get back to the principles of war which Grant's career exemplified. We have no doubt that Grant understood them and applied them. He understood that the hostile army is the proper objective of our own forces—a fact which McClelland failed to appreciate. With this objective in view he applied the principle of the offensive. In conjunction with the principle of the offensive he made use of the principle of attrition. These are all simple and were effective even if lacking in their execution the brilliance displayed by Lee in his operations. The author appears to have needlessly complicated the principles of war in his elaboration of them.

Nevertheless we advise the military student to read Colonel Fuller's appraisal of General Grant and his generalship. We are certain that you will not agree with him in details but by a different route you will reach the same conclusion—that General Grant was one of the great captains of all times.

Sherman. By B. H. Liddell Hart. New York: Dodd, Mead & Co. 9¼" x 6¼". 456 pp. \$5.00.

There is no question but that Captain Liddell Hart is one of the most brilliant of modern military writers. His style is interesting and entertaining. This reviewer enjoys his writing whether he agrees with its substance or not. In this book he has portrayed the importance of Sherman and his campaigns in the American Civil War. He has emphasized his high sense of duty, his loyalty to his subordinates and his superiors, and his exact estimate of his own capabilities. General Sherman's march to Atlanta and the sea had an important effect upon the outcome of the Civil War. Perhaps some will not agree with the author that it was the decisive operation of the war. All will agree with him that Sherman had "the eye for the ground" which is an important factor in the success of any operation, particularly in mobile warfare. Nor will any one deny that he was a master of maneuver. He maneuvered his way into possession of the city of Atlanta. How much his success was due to the adopted Confederate plan of opposition cannot be exactly estimated. The Atlanta campaign shows Sherman's remarkable grasp of the situation at all times and in all its details. He is the chess player carefully planning his moves upon the boards and realizing the expected results with confidence and satisfaction.

Sherman, unlike many great leaders, was the ideal subordinate. He was able at all times to submerge his own conceptions and accept those of his superiors as his own. Loyalty was that characteristic which enabled him to do this so energetically and wholeheartedly. His loyalty to Grant was outstanding and no writer of his biography would fail to mention it. In the case of Grant this reviewer prefers to believe that it was fostered as much by the personal



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regard which Sherman held for Grant as much as by his recognized duty as a subordinate. Loyalty to Grant may have been due to the fact that both were West Pointers. Their relationship at the Academy could hardly have been intimate since Sherman was a first classman when Grant was a plebe. But there is no doubt that in an army where many of the ranking officers were appointed through political considerations two graduates of West Point should have been drawn to each other for mutual support and understanding. Capt. Liddell Hart devotes considerable space to a dissertation upon the stifling influence of West Point upon the future military leader. This reviewer will be pardoned if he differs with the author and defends his own alma mater which is that of Sherman and Grant—of Lee and Jackson.

It is doubtful if any outsider can properly evaluate the influence of West Point upon its graduates. To them it is not an "isolated cliff amid the Highlands of the Hudson cut off from the outside world as if it were a prison." West Point is a mill which grinds the grist which is sent to it. To the outsider it may appear the prison. To those inside, its cliffs seem to personify the immutability of the "duty" which they owe their "country," the standard of "honor" which military men have held high since the days of knighthood. There can be no compromise where "Duty—Honor—Country" is concerned. These words are emblazoned upon the crest of the Academy and in the hearts of its graduates. This bond of understanding exists among all graduates. Grant's regard for Sherman, Sherman's loyalty to Grant are easily understood.

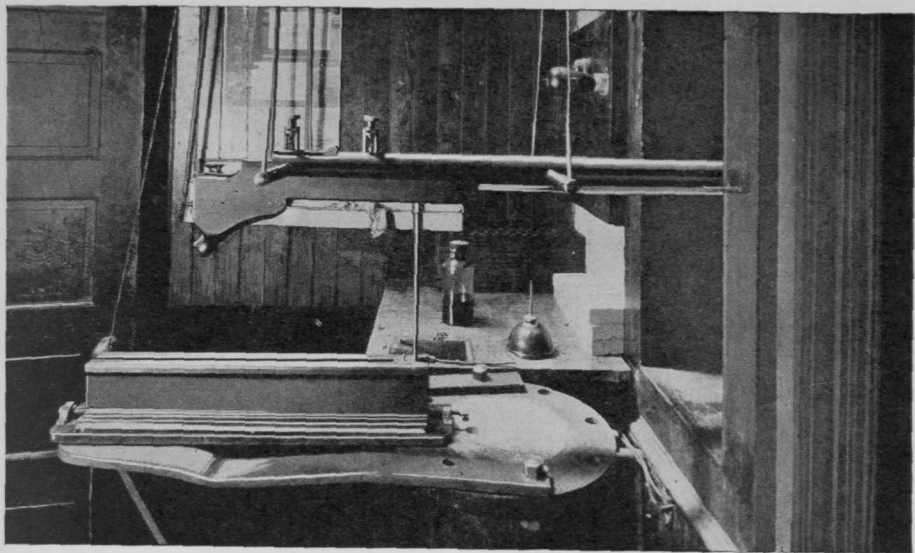
Captain Liddell Hart might have made Sherman more human. Although the book is full of anecdotes and incidents of his life this reader felt that the veil was not entirely drawn and that we did not see the real human Sherman we believe was there. You will like the book. The name of the author assures that.

History of Explosions, on Which the American Table of Distances Was Based.

Compiled by Ralph Assheton. Published under the direction of the Institute of Makers of Explosives. 6½" x 9". 316 pp. \$5.25.

This is a history of *explosions*, not explosives. Some years ago the Institute of Makers of Explosives saw the necessity for a table which would be a safe and rational index of minimum distances between dwellings, roads and other structures and buildings used for the manufacture and storage of large quantities of explosives. For this purpose over one hundred explosions were carefully investigated and the distances of damaged structures plotted. The resulting curve is an interesting one, in that it is of a parabolic type, and in that the distances vary as the cube root of the quantity of explosives. Thus no inhabited building should be closer than eight hundred and ninety feet to a building containing ten thousand pounds of dynamite; yet if the amount of explosives is raised to eighty thousand pounds the distance is only doubled.

Most of the cases set forth in this book are the less interesting accidents about explosive factories. But all the more spectacular and tragic explosions are dispassionately described. The two Black Tom explosions in New York Harbor in 1916 involved one hundred thousand pounds of picric acid in a barge and four hundred thousand pounds of T. N. T. in eight freight cars. Due to the fact that these occurred on Sunday morning the loss of life was small. On July 10, 1926, there were a series of explosions at the Navy Ammunition Depot at Lake Denmark, N. J. The first explosion was of six hundred and seventy thousand pounds of T. N. T. in depth charges and aerial bombs; the second was of one million six hundred thousand pounds of T. N. T.; while the last of the major



RECOIL GUN IN POSITION FOR ACTION

Recoil

THE ideal shotgun powder would be that which gave the shot charge the highest velocity and killing power without any recoil. Unfortunately this ideal can never be fulfilled because it would contradict a physical law. Sir Isaac Newton's Third Law of Motion explains Recoil:

"Action and reaction are equal and opposite."

Expressing this in a simplified formula:

$$\frac{\text{WEIGHT OF THE SHOT times VELOCITY OF THE SHOT} = \text{WEIGHT OF THE GUN times RECOIL VELOCITY OF THE GUN}}$$

It can be seen from this that if the weight of the shot charge and the weight of the gun are kept the same, then any increase in the velocity of the shot has to be accompanied by an increase in the Recoil Velocity. It can also be understood that a shotgun load which appears to have a lighter recoil must necessarily have a lower muzzle velocity than a shotgun load which appears to have a heavier recoil.

The Recoil Velocity can be very readily calculated by transposing the equation:

$$\text{Recoil Velocity of Gun} = \frac{\text{WEIGHT OF SHOT CHARGE times VELOCITY OF SHOT CHARGE}}{\text{WEIGHT OF THE GUN}}$$

Rather than make extensive calculations, however, ballistic experts have developed a special apparatus that actually measures the recoil. This apparatus is called a pendulum gun and is illustrated in the accompanying photograph. The gun weighs 50 pounds and is freely suspended from crossed wires 5 feet long. The pointer under the gun pushes back a small indicator as it recoils. Thus is measured the exact distance the gun kicks back, and an additional control is exercised to assure the shooter's comfort as well as safety.

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Smokeless Shotgun Powders

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explosions was of one hundred and eighty thousand of mixed explosives. Eighteen lives were lost and substantial damage done to buildings a mile and a half away. One of the most interesting features of this disaster was that nearly four million pounds of T. N. T. and Explosive "D" did not detonate, but burned.

The most terrible explosion in history was that of the French ammunition ship, *Mont Blanc*, in Halifax Harbor on December 6, 1917. This ship carried five million two hundred and thirty-four thousand seven hundred and fifty-four pounds of T. N. T., gun cotton and picric acid when rammed by the Belgian relief ship *Imo*. The terrific blast completely demolished hundreds of houses, killed over one thousand eight hundred persons and wounded nearly eight thousand more. Compared to the three hundred dead in the Chicago fire and the four hundred and ninety-eight lives lost in the San Francisco earthquake, the Halifax explosion is one of the greatest disasters in the history of North America.

This book can now be found in the Library of the Coast Artillery School.—H. C.

Napoleon and His Family: The Story of a Corsican Clan. By Walter Geer. New York: Brentano's. 1929. 6¼" x 9¼". 407 pp. Il. \$5.00.

With this volume—the third of the series—the author brings his account of the Napoleon family to a close. The period covered extends from Moscow to St. Helena—1813 to 1821—but does not close as abruptly as the sub-title would indicate, for the final chapter extends the story from the death of Napoleon to 1840.

We owe a debt of gratitude to Mr. Geer for bringing together in one place the many family threads that interwove so closely to become a material influence upon the one great member of the family. The biggest mistake Napoleon made resulted from an inherited trait—the Corsican clan spirit—and it is more than probable that had Napoleon kept his relatives in roles suited to their capabilities his career would have been markedly different and no less brilliant. Napoleon's affection for the members of his family seemed to be in inverse ratio to their abilities and those whom he favored most served him least well.

It is, therefore, important that we who study Napoleon should know his family and the part they played in bringing about his downfall. In the present volume we find events coming to a logical conclusion—a conclusion which became almost inevitable when the brothers and sisters of Napoleon were, by him, made kings and queens.

The author, in following the fortunes of Joseph, Louis, Lucien, Jerome, Pauline, Caroline, Elisa, Madam, and numerous in-laws, has admirably performed a difficult task. He has become an authority on Napoleon; and his books taken together cover in full the intimate details of the life of the famous Bonaparte. Of Napoleon's official life and his military career, much has been written already, but we trust that this field will not be neglected by Mr. Geer. At any rate, we shall look forward with anticipation to the appearance of his next work on Napoleon.—R. A.

John Huss. By Benito Mussolini. Translated by Clifford Parker. New York: Albert and Charles Boni. 1929. 5¼" x 7¾". 225 pp. \$2.00.

The recent treaty negotiated by Mussolini for the Kingdom of Italy with the Pope, whereby the temporal power of the Papacy was reestablished, makes this book doubly interesting. It was written some years ago, apparently before the war, certainly before the Duce became famous. The socialist doctrines he then

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professed are plainly evident and his strictures on the Church of Rome are remarkable. True, they refer mainly to the condition of the Church during the fourteenth and fifteenth centuries, but in some cases he does not limit them to that period.

The book is a biography of John Huss, the noted Bohemian heretic, who endeavored to correct the abuses which had crept into the Church. He was a follower of Wycliffe, the English reformer, and the predecessor of Luther.

Mussolini gives a vivid picture of the "great corruption of the Church of Rome" at that time and goes deeply into the activities of Huss, the doctrines he preached and the proceedings of the Council of Constance in 1415, which condemned Huss to the stake.

Mussolini shows the greatest sympathy for the reformer and his efforts. Thus, in speaking of the "machinations directed against Huss," he says that "the Germans above all were active in the nefarious business." He is severe in his comments on the conduct of "that mockery of a trial" at Constance and after narrating the death of Huss says "the great papal crime was completed. But the death of Huss, the Man of Truth, aroused one of the most widespread and bloody popular insurrections that history records."

The Duce then asks whether the historians of the Church of Rome have been "more humane and more equitable than the judges of the Council of Constance?" and answers it by saying that "to ask of them (Church historians) impartiality of judgment and of criticism is perfectly useless." After quoting from one Church history he caustically remarks: "Thus the heretic deserved to be burned and the infallible Church of Rome, like the Divine Lamb, is free from sin, nor does remorse for the accomplishment of crimes ever trouble it."

Mussolini's attitude towards the Church at the time he wrote this book is thus clear, not less remarkable are his comments on the papal temporal power. He quotes Huss with approval when the reformer said: "The Saviour has forbidden his apostles any terrestrial domination, but his Divine word has been a mockery ever since the Emperor Constantine gave a kingdom to the Pope." Mussolini follows this by saying, "but the Catholic clergy, after five centuries of Hussite preaching, has not modified its conduct. The clergy of Austria and Italy protest at every Congress against the occupation of Rome by the Italian government, and the black crowd of Jesuits has not yet pardoned and will, perhaps, never pardon, 'him who holds.'" This from the man who is responsible for the reestablishment of that same temporal power. Truly he has changed and doubtless he agrees with Lincoln, who, in justifying some change in his own opinions, remarked to the effect that he had no use for a man who did not know more today than he did yesterday.

Not only is this book worth reading for the light it gives on Mussolini's character, but it is an excellent life of John Huss, well-written, clearly expressed and it is probably the best presentation of Huss' teachings in the English language.—R. E. W.